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ORDOVICIAN CONODONT BIOSTRATIGRAPHY, WESTERN CANADIAN CORDILLERA

S.M.L. Pohler and M.J. Orchard

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ORDOVICIAN CONODONT BIOSTRATIGRAPHY WESTERN CANADIAN CORDILLERA

Abstract

A total of 116 conodont collections from Upper Cambrian to Upper Ordovician rocks in the western Canadian Cordillera are reported and documented. Most come from autochthonous rocks of the greater Selwyn Basin, and a few from the parautochthonous Cassiar Platform and the allochthonous Quesnel and Alexander terranes. Conodonts from the Rabbitkettle Formation and the Road River Group of the more westerly outer part of the Selwyn Basin are dominantly of North Atlantic aspect and Early to Middle Ordovician in age. Those from the Rabbitkettle, Broken Skull and Haywire formations closer to the Mackenzie Platform are of mixed North Atlantic and Midcontinent affinity and are Late Cambrian to Late Ordovician in age. Small faunas from Cassiar Platform and neighbouring Selwyn Basin strata are of Midcontinent aspect and Early to Late Ordovician in age. Faunas collected from the allochthonous Alexander and Quesnel terranes are enigmatic in their generic, biostratigraphic, and biofacies affiliation.

Résumé

Cent seize collections de conodontes provenant de roches du Cambrien supérieur à l'Ordovicien supérieur dans la partie ouest de la Cordillère sont présentées et documentées. La plupart proviennent de roches autochtones du grand bassin de Selwyn et quelques-uns de la plate-forme parautochtone de Cassiar et des terranes allochtones de Quesnel et d'Alexander. Les conodontes de la formation de Rabbitkettle et du groupe de Road River de la partie externe la plus à l'ouest du bassin de Selwyn ont surtout un aspect de type atlantique nord et datent de l'Ordovicien inférieur à moyen. Ceux des formations de Rabbitkettle, de Broken Skull et de Haywire, situées plus près de la plate-forme de Mackenzie, présentent une affinité mixte de type atlantique nord et médio-continental et datent du Cambrien supérieur à l'Ordovicien supérieur. Les petites faunes de la plate-forme de Cassiar et les couches voisines du bassin de Selwyn présentent un aspect médio-continental et leur âge se situe entre l'Ordovicien inférieur et l'Ordovicien supérieur. Les faunes prélevées dans les terranes allochtones d'Alexander et de Quesnel présentent une affiliation de génèse, de biostratigraphie et de biofaciès ambiguë.

INTRODUCTION

Ordovician conodonts have been collected over the past 10 years from various localities in the western Canadian Cordillera during regional mapping projects (Fig. 1). Some of these occurrences have been published as faunal lists, but in this paper, all the available collections of Ordovician conodonts from the tectonized western margin of Canada are documented in detail. Most of the conodont collections come from autochthonous Paleozoic successions of the greater Selwyn Basin, but a few samples come from the parautochthonous Cassiar Platform and from the allochthonous Alexander and Quesnel terranes.

A total of 116 conodont collections contain over 3000 specimens of Late Cambrian to Ordovician age. Conodonts are moderately to poorly preserved, and many are broken or deformed. Conodont Colour Alteration Indices (CAI) are typically around 5, none were below 4 or above 7. In general, the conodonts were recovered from reconnaissance samples, but several collections from the Broken Skull and Haywire formations come from measured sections (Appendix I). The stratigraphical context of the conodonts is discussed below, and faunal lists are provided with each area discussed. Specimens illustrated in Plates 1-6 are housed in the National Type Collection of the Geological Survey of Canada, Ottawa.

ORDOVICIAN CONODONTS FROM THE ALEXANDER TERRANE

The Alexander Terrane is a tectonic fragment, occupying much of southeast Alaska, the Saint Elias Mountains, Yukon Territory, and part of the coastal region of west-central British Columbia (Fig. 2). The terrane is unique in western North America in having a long and complete Paleozoic and somewhat disrupted Mesozoic history. Schuchert (1923) was the first to recognize the Alexander Terrane as a distinctive assemblage; it was named by Berg et al. (1972, 1978).

Ordovician conodonts have been previously reported from the Alexander Terrane in southeast Alaska by Savage and Savage (1980) who found the genus *Periodon* in the Abbess Island conglomerate, which probably belongs to the Descon Formation (Churkin and Eberlein, 1970).

Biostratigraphy

Conodont samples were collected during regional mapping of the Dezadeash and Tatshenshini Lake map areas; seven samples contained Ordovician conodonts. One of these samples comes from the Dezadeash map area (Campbell and Dodds, 1982) and the remaining six from the Tatshenshini River map area (Campbell and Dodds, 1983) (Fig. 2). All but one sample are from thin-bedded limestones assigned to map unit "ODcs"; collection GSC loc. C-142604 comes from unit "Psp". These rock units are different from those near Klowock in which Savage and Savage (1980) found Ordovician conodonts (C.J. Dodds, pers. comm., 1988).

The total fauna comprises 27 specimens with CAI 5-6, most of which are poorly preserved and only identifiable at the genus level (Table 1). The oldest element present is *Variabiloconus bassleri* (Furnish), a species characteristic of Fauna C (late Tremadoc) of the North American Midcontinent (Fig. 3; Ethington and Clark, 1971). A Tremadoc age for the entire collection (with exception of sample GSC loc. C-102151) is supported by the prevalence of simple cone genera, which is characteristic for this time interval (faunas C and D). The youngest component of the fauna is a costate specimen of *Protopanderodus*, which suggests an Arenig, or younger age.

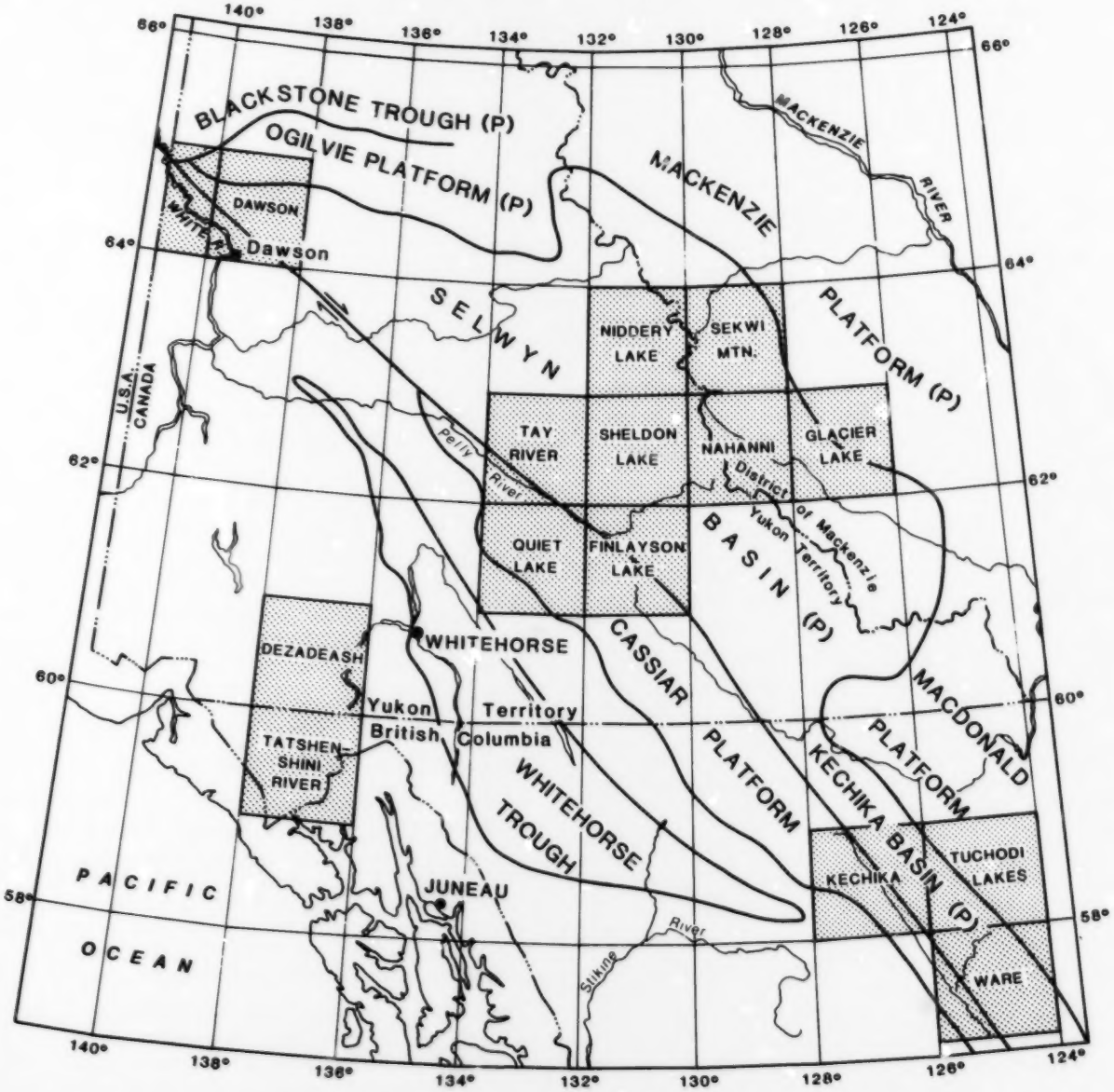

Figure 1. Index map of northwestern Canada showing major paleogeographic features. Shaded areas mark location of map areas from which Ordovician conodont collections were recovered.

ORDOVICIAN CONODONTS FROM THE QUESNEL TERRANE

The Quesnel Terrane (Monger et al., 1982) is characterized by upper Paleozoic and lower Mesozoic volcanic, sedimentary and plutonic rocks that are best developed in south-central British Columbia. Ordovician conodonts were found in the Shoemaker Assemblage of the Okanagan Subterrane. This is a heterogenous package, comprising limestone, argillite, chert, greenstone, and ultramafic rocks (Wheeler and McFeely, 1987), which appears to preserve the record of an oceanic or marginal basin (Monger, 1977; Milford, 1984). The Shoemaker Assemblage near Keremeos (Penticton map area) includes a number of intermixed strata such as greenstone, silicified tuffs, limestone and chert breccia. A limestone outcrop near Cedar Creek has been assigned to this assemblage (Milford, 1984) and has yielded a small conodont fauna of Ordovician age (Pohler et al., 1989).

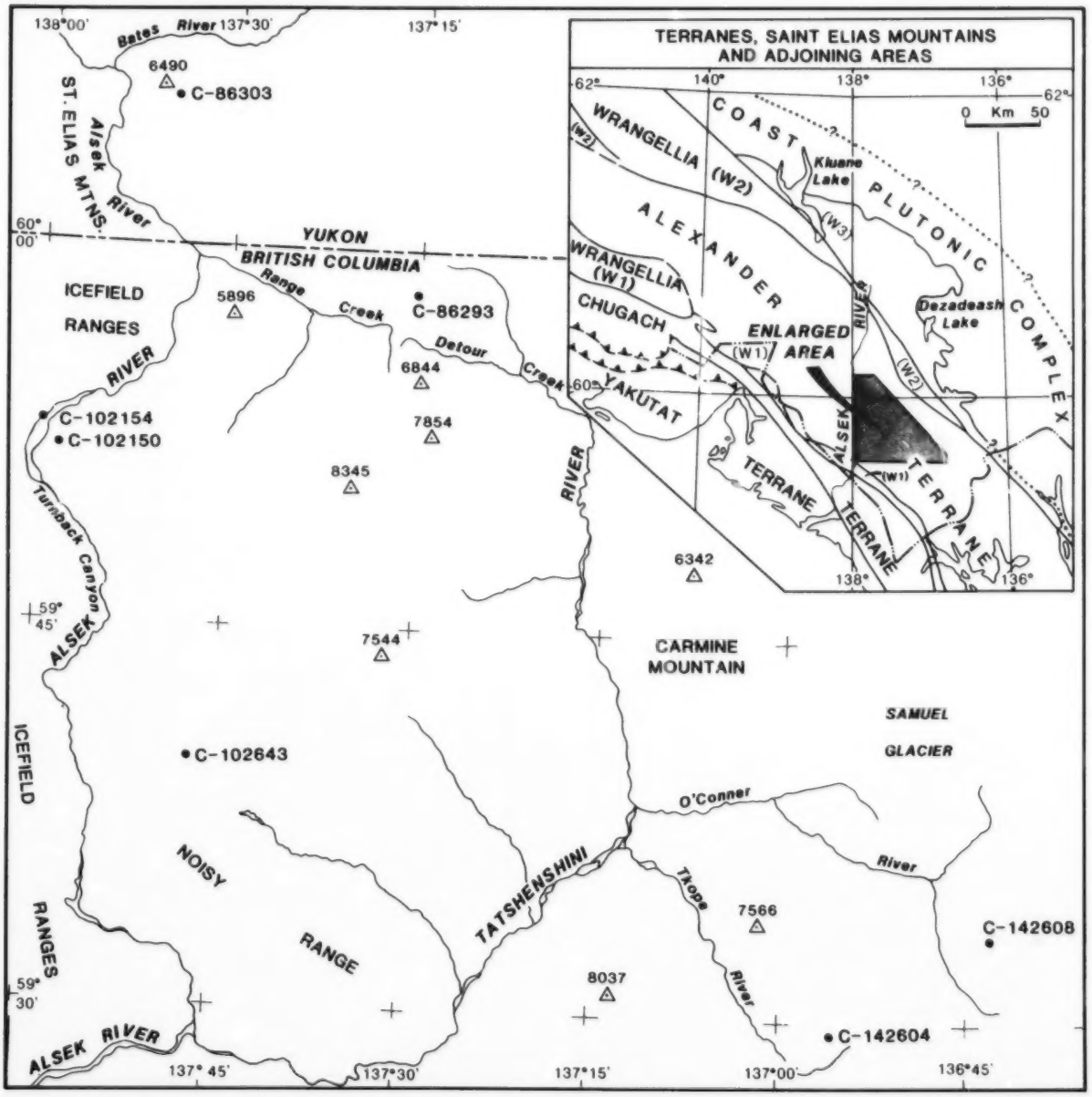

Figure 2. Location map of northwest Tatshenshini River and southwest Dezadeash Lake map areas showing Ordovician conodont localities (solid circles). Partly based on Dodds and Campbell (1988).

Biostratigraphy

Five conodont collections contained 114 conodonts, presumably all of the same age. The fauna consists of *Belodella?* sp., *Belodina compressa* (Branson and Mehl)?, *Drepanoistodus suberectus* (Branson and Mehl), *"Oistodus"* venustus Stauffer s.f., *Protopanderodus* sp., and *Strachanognathus parvus* Rhodes (Table 2). The lower age limit is given by *Belodina* sp., which has not been reported from rocks older than Fauna 7 (Sweet et al., 1971; Sweet, 1979) at or near the bottom of the North American Black River Stage (Fig. 3). All of the genera and species present range to the top of the Ordovician with the exception of *Belodella?*, which has a longer range.

The fauna has been discussed in more detail in a previous paper (Pohler et al., 1989), and regional geology and precise sample localities can be found therein.

ORDOVICIAN CONODONTS FROM CASSIAR PLATFORM

Cassiar Platform (Fig. 1; Gabrielse, 1967) is the only region west of Tintina Fault that shows deposition of platform sediments. Upper Ordovician carbonates are overlain by Silurian carbonates of the Sandpile Group, followed by undated carbonates. Upon restoration of lateral fault offsets (400-750 km; Roddick, 1967; Gabrielse, 1985) along Tintina Fault and Rocky Mountain Trench, Cassiar Platform would be juxtaposed with Kakwa Platform (south of Kechika Basin and the Peace-Athabasca Arch) (Cecile and Norford, in press).

Biostratigraphy

Two conodont collections from Finlayson Lake and Quiet Lake map areas originate from Cassiar Platform strata (Table 3; Tempelman-Kluit, 1977a,b, 1979, pers. comm., 1988).

Table 1. Alexander Terrane, "Goat Herd Group".

Map area	Dezadeash	Tatshenshini River					
Species/GSC loc. no.	C-086303	C-142608	C-086293	C-102154	C-102150	C-102643	C-142604
Drepanoistodus sp.	—	—	4	—	—	—	—
Juanognathus? sp.	1	—	—	—	—	—	—
Proconodontus? sp.	—	3	—	—	—	—	—
Protopanderodus? sp.	—	—	—	1	—	—	—
Variabiloconus bassleri	—	—	2	—	—	—	—
Indet. coniform elements	2	1	10	—	1	1	—
Indet. ramiform element	—	—	—	—	—	—	1

Table 2. Quesnel Terrane; Old Tom - Shoemaker Assemblage.

Map area	Penticton				
Species/GSC loc. no.	C-149527	C-158537	C-158484	C-158485	C-158488
Belodella? sp.	9	7	31	20	2
Belodina compressa?	3	1	4	14	—
Drepanoistodus suberectus	1	—	—	2	—
Oistodus venustus	1	—	—	—	—
Protopanderodus sp.	2	—	—	—	1
Strachanognathus parvus	2	2	1	6	—
Indet. coniform elements	3	—	—	1	1

Table 3. Cassiar Platform.

Map area	Finlayson Lake	Quiet Lake
Species/GSC loc. no.	C-093479	C-086387
Paroistodus sp.	1	—
Phragmodus undatus	14	—
Protopanderodus? sp.	—	1
Oistodiform element	1	—
Scolopodiform element	1	—

The collection from Finlayson Lake comes from map unit "uCOc", a succession of calcareous limestone, siltstone and shale with slaty and phyllitic equivalents. This unit is thought to be locally equivalent to sediments of the Kechika Group, which are also found in the map area. The collection includes *Phragmodus undatus* Branson and Mehl, which has a long range from Midcontinent Fauna 6 into Fauna 13 (Sweet et al., 1971; McCracken and Barnes, 1981). An associated species of *Paroistodus?* (sensu McCracken and Barnes, 1981) is characteristic of Middle to Upper Ordovician strata. A late Llandeilo to Ashgill age is the best possible time frame that can be deduced (Fig. 3).

The second collection from Quiet Lake map area, comes from map unit "SDdq", a sandy dolomite which grades into quartzite of the Sandpile Group. A single specimen of *Protopanderodus* indicates Arenig to Ashgill age.

ORDOVICIAN CONODONTS FROM KECHIKA BASIN

Kechika Basin (Douglas et al., 1970) is a southern extension of Selwyn Basin. It is bordered to the east by MacDonald Platform, to the west by an extension of Cassiar Platform and

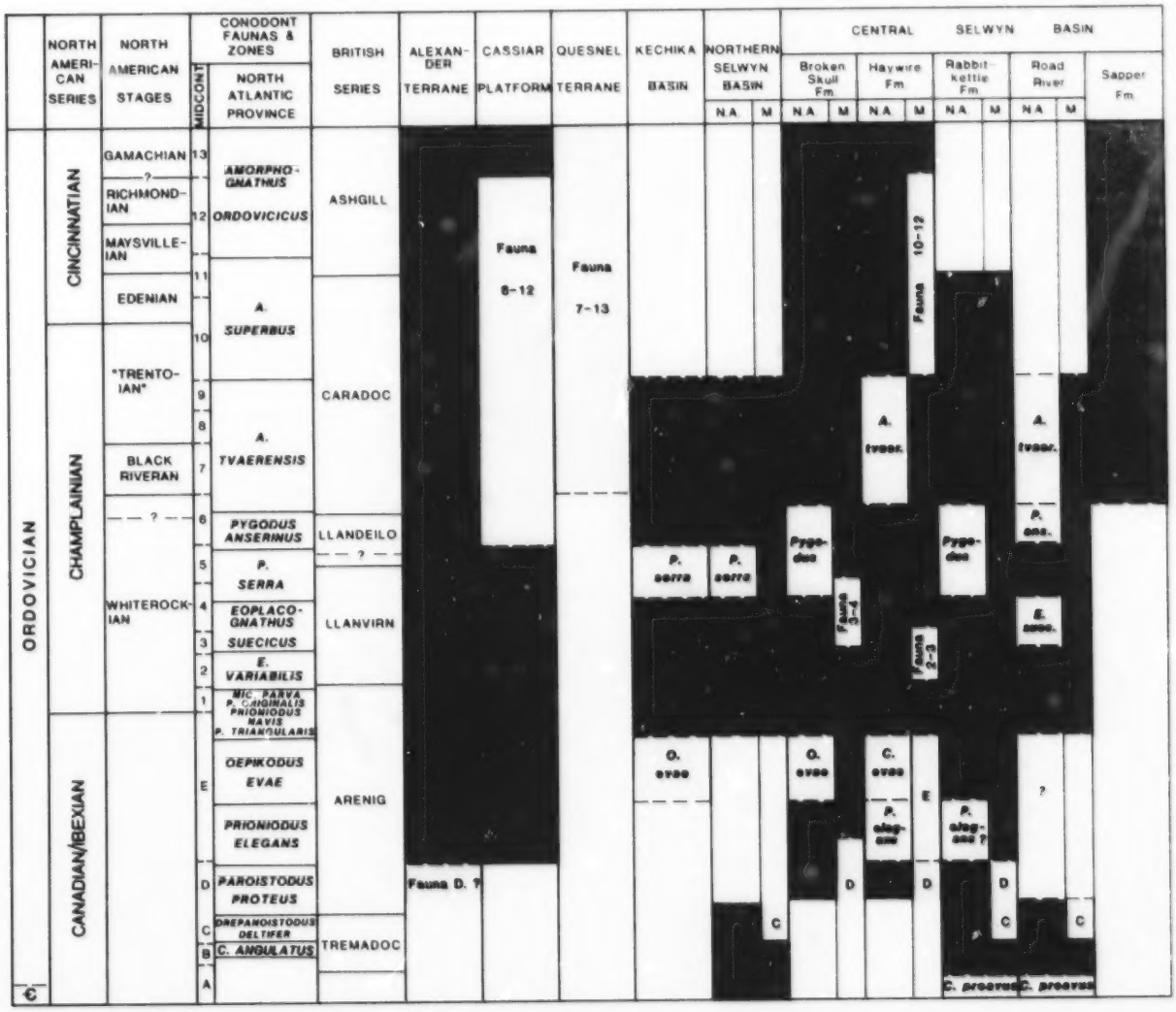

Figure 3. Ordovician biostratigraphy of western Canadian Cordilleran conodont localities. Light grey shading marks recognized faunal intervals and zones; dark grey shading marks occurrence and range of faunas with long-ranging or indeterminable species and genera. (N.A.= North Atlantic Province; M= Midcontinent Province). Conodont faunas and zones follow largely the suggestions of Barnes et al. (1981) with the exception of the *P. elegans* Zone, which has been found to have a different range in material from the Arenigian Cow Head Group, Western Newfoundland (Pohler and James, 1989).

to the south by Peace River Arch. From Early Ordovician to Silurian, the basin was filled with shale and limestone of the Kechika Formation (Gabrielse, 1977) and the Road River Group (Jackson and Lenz, 1962; Gabrielse, 1975). Discussions of the regional geology of the Kechika Basin can be found in Cecile and Norford (in press) and in McClay et al. (in press). Ordovician conodonts were collected by K.M. McClay and D. McIntyre during regional mapping in the Ware, Kechika and Tuchodi lakes map areas.

Biostratigraphy

Of the eight conodont collections from Kechika, Tuchodi Lakes and Ware map areas (Fig. 4), five come from the Road River Group. In addition, collection GSC loc. C-118916 probably comes from the Kechika Formation and collections GSC loc. C-102875 and GSC loc. C-102872 came from a carbonate debris flow in contact with Kechika Formation rocks. In total, 59 Ordovician conodonts assigned to 17 different species (Table 4) have been recovered. The CAI is around 5. The oldest fauna is characterized by the occurrence of *Acodus? sweeti* Serpagli, a component of the *Oepikodus evae* Zone and probably also of the *Prioniodus elegans* Zone in the Americas (Serpagli, 1974; Johnston, 1987; Pohler et al., 1987). The younger *O. evae* Zone is suggested by the presence of *Parapanderodus arcuatus* Stouge in the collection, a genus that has so far only been described from strata younger than the *O. evae* Zone (Stouge, 1984).

The youngest interval identified in the Kechika Basin is constrained by the occurrence of *Pygodus serra* (Hadding) which defines the late Llanvirnian *P. serra* Zone (Bergström, 1971). Several collections contain only long-ranging species and genera that do not allow a precise assignment. Some of these faunas are constrained only by the occurrence of *Periodon aculeatus* Hadding, which is known to range from mid-Arenig (late *O. evae* Zone) into the late Llandeilo (*Pygodus anserinus* Zone) (Löfgren, 1978) or even higher into the early Caradoc (*Amorphognathus tvaerensis* Zone) (Bergström and Orchard, 1985). In most other collections, however, *P. aculeatus* is accompanied by *Protopanderodus? giganteus* (Sweet and Bergström), *Paroistodus originalis* Sergeeva, and *Drepanoistodus basiovalis* (Sergeeva). This association is typical of late Arenig (post-*O. evae* Zone) to early Llanvirn and is constrained by *P. originalis*, which ranges up into the *E. suecicus* Zone (Bergström and Orchard, 1985). In summary, conodonts indicate a minimum range of mid-Arenig to early Llandeilo and are no younger than middle Caradoc age for the sampled Kechika Basin strata.

ORDOVICIAN CONODONTS FROM THE NORTHERN SELWYN BASIN

Ordovician conodonts were collected from the Dawson map area (Green, 1972) by R.I. Thompson and others during regional mapping (Fig. 5). The area belongs in part to the Selwyn Basin and represents its northern extension. This northern part of the Selwyn Basin is bordered to the south by Tintina Fault and to the north-northeast by the Mackenzie and Ogilvie platforms. Thompson and Roots (1982) established

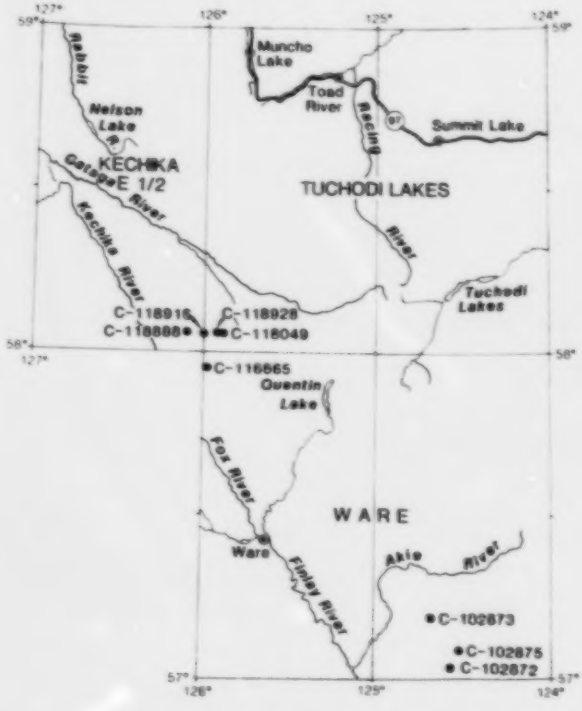

Figure 4. Ordovician conodont sample localities (solid circles) in Kechika, Tuchodi Lakes and Ware map areas. GSC locality numbers are shown.

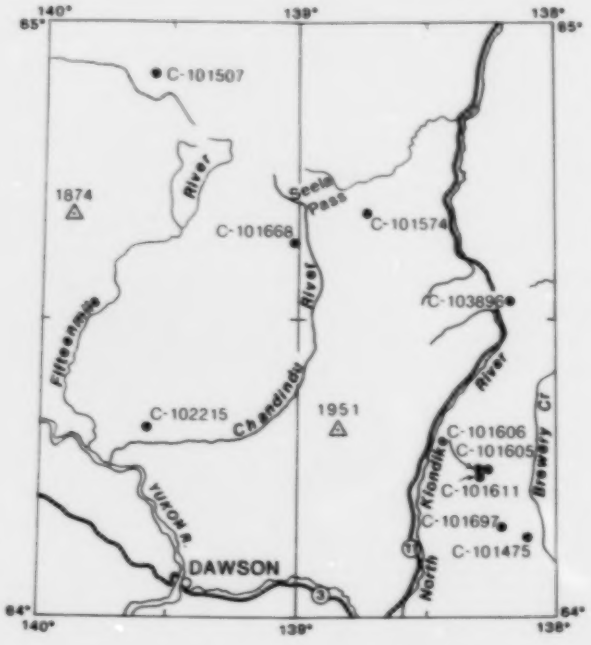

Figure 5. Ordovician conodont sample localities (solid circles) in Dawson map area. GSC locality numbers are shown.

a preliminary stratigraphy and recognized 11 lithostratigraphic units in addition to the Road River "Formation" (the Road River "Formation" has been elevated to "Group" status; Fritz, 1985). During the Early Ordovician, predominantly shale, calcareous shale, and minor limestone were deposited in the northern Selwyn Basin, and from Middle Ordovician to Late Silurian, chert and siliceous shale of the Road River Group were deposited in the area (Cecile and Norford, in press). All Ordovician conodont samples discussed from the Dawson map area come from the Road River Group (Thompson and Roots, 1982). These sediments, which were dated as Early Ordovician to Early Silurian on the basis of graptolite collections, are further discussed in Blaise and Mercier (1984).

Biostratigraphy

Ten conodont collections from the Dawson map area were recovered from limestone assigned to the undivided Road River Group of the northern part of the Selwyn Basin. The collections comprise a total of 543 conodont elements referred to 21 species (Table 5). CAI values range from 4 to 6.

The oldest collections include species of *Cordylodus*, such as *C. lindstroemi* Druce and Jones and *C. intermedius* Furnish, together with *Variabiliconus bassleri* and *Rossodus manitouensis* Repetski and Ethington, suggesting a late Fauna B or Fauna C age (Tremadoc). The next youngest interval is indicated by the occurrence of *Periodon aculeatus*, which

Table 4. Southern Selwyn Basin (Kechika Basin).

Map area	Kechika	Tuchodi Lakes			Ware			
Species/GSC loc. no.	C-118888	C-118928	C-118049	C-118916	C-102875	C-102873	C-102872	C-116665
Acodus? sweeti	—	—	—	—	1	—	—	—
A. sp.	—	—	—	—	2	—	—	—
Ansella? sp.	4	—	—	—	—	—	—	—
Drepanodiform element	—	—	—	1	—	—	—	—
Drepanodus arcuatus	—	1	—	—	—	—	—	—
Drepanoistodus basiovalis	—	—	—	—	—	—	2	—
Panderodus? sp.	—	1	—	—	—	4	—	—
Parapanderodus arcuatus	—	—	—	—	3	—	1	—
Paroistodus originalis	—	—	—	—	—	—	1	1
P.? sp.	—	—	—	—	—	2	—	—
Periodon aculeatus	—	—	—	—	—	12	5	—
P. sp.	1	—	—	—	—	—	—	—
Protopanderodus? giganteus	—	—	2	—	—	1	—	—
P. sp.	—	1	—	—	—	—	2	—
Protoprioniodus sp.	—	—	--	—	1	—	—	—
Pygodus serra	—	—	1	—	—	—	—	—
"Scandodus" robustus	—	—	—	—	2	—	—	—
Scolopodiform element	—	1	—	—	—	—	—	—
Indet. coniform elements	4	—	—	—	—	—	—	—

may be as old as late *O. evae* Zone and as young as middle Caradoc. Most of the remaining samples yield *Pygodus serra* (cf. Orchard, 1986) and thus fall into the late Llanvirn or early Llandeilo *P. serra* Zone (Bergström, 1971). None of the faunas recovered is younger than middle Caradoc, as indicated by the occurrence of *P. aculeatus*.

ORDOVICIAN CONODONTS FROM THE CENTRAL SELWYN BASIN

Selwyn Basin (Gabrielse, 1967) is a large miogeoclinal basin that occupies much of the eastern Yukon Territory and western District of MacKenzie. It is bounded to the north by Ogilvie Arch, to the east by MacKenzie Platform, and to the west by Tintina Fault. To the south, the basin connects with Kechika Basin.

There is some discussion whether Selwyn Basin was restricted or open to the west. Cecile and Norford (in press) point out the presence of positive areas that were the site of carbonate buildups during the Cambrian and possibly during the Silurian and Devonian and which may have (on the basis of fault restoration) created a boundary between the inner Selwyn and an outer Nasina Basin (Tempelman-Kluit, 1979). To the south, Cassiar Platform probably restricted Kechika Basin in the west.

Ordovician conodonts were found in samples collected from several map areas in the central Selwyn Basin, namely Tay River, Sekwi Mountain, Glacier Lake, Niddery Lake, Sheldon Lake and Nahanni map areas (Figs. 6, 7). Of the first three areas mentioned, only one sample from each is available; from Niddery Lake and Sheldon Lake map areas, 8 and 12 samples respectively are Ordovician in age; the remaining samples come from Nahanni map area. Lithostratigraphy changes across the basin from platform in the east to transitional to offshelf facies in the west. Ordovician conodonts from platform strata of the Mackenzie Platform have been described by Tipnis et al. (1978) and are discussed by Mitchell and Sweet (1989), but they did not form part of this

Table 5. Northern Selwyn Basin, undivided Road River Group.

Map area	Dawson									
Species/GSC loc. no.	C-102215	C-101605	C-101606	C-101611	C-101475	C-101574	C-103896	C-101507	C-101868	C-101657
Ansella nevadensis	—	—	—	—	—	—	—	4	—	—
Cordylodus intermedius	—	—	—	—	2	—	—	—	—	—
C. lindstroemi	—	1		—	—	—	—	—	—	—
C. sp.	—	—	—	1	—	—	—	—	—	—
Comuodus longibasis	—	—	—	—	—	—	—	1	—	—
Drepanodus arcuatus	—	—	—	—	—	1		10	—	—
Drepanoistodus sp.	—	—	—	—	1	—	—	—	—	—
D. suberectus	—	—	—	—	—	—	—	—	—	—
Eoplacognathus sp.	—	—	—	—	—	—	—	4	—	—
Paroistodus? mutatus	—	—	—	—	—	4	—	2	—	—
Periodon aculeatus	—	—	—	—	—	4	2	315	2	2
Prooneotodus sp.	—	1	—	—	—	—	—	—	—	—
Protoconodont?	1	—	—	—	—	—	—	—	—	—
Protopanderodus? pgarileus	—	—	—	—	—	—	—	3	—	1
P. robustus	—	—	—	—	—	—	—	—	—	4
P. sp.	—	—	—	—	—	—	1	—	—	—
Pygodus serra	—	—	—	—	—	—	1	181	—	1
Rossodus manitouensis	—	—	—	—	1	—	—	—	—	—
Spinodus sp.	—	—	—	—	—	—	—	1	—	1
Tendontus nakamurai	—	—	1	—	—	—	—	—	—	—
Variabiloconus bassleri	—	—	1	1	—	—	—	—	—	—
Indet. conform element	—	—	—	1	4	—	—	7	1	—

study. Gordey (in press) distinguished interstratified shelf and offshelf facies in the northeast from offshelf facies in the southwest of the Nahanni map area (Fig. 7). The Ordovician segment of the interstratified facies comprises the Rabbitkettle Formation (northeast of South Nahanni River), the Broken Skull Formation, the Haywire Formation, and the lower part of the Sapper Formation. The age-equivalent offshelf facies includes the Rabbitkettle Formation (southwest of South Nahanni River) and the Duo Lake Formation of the Road River Group.

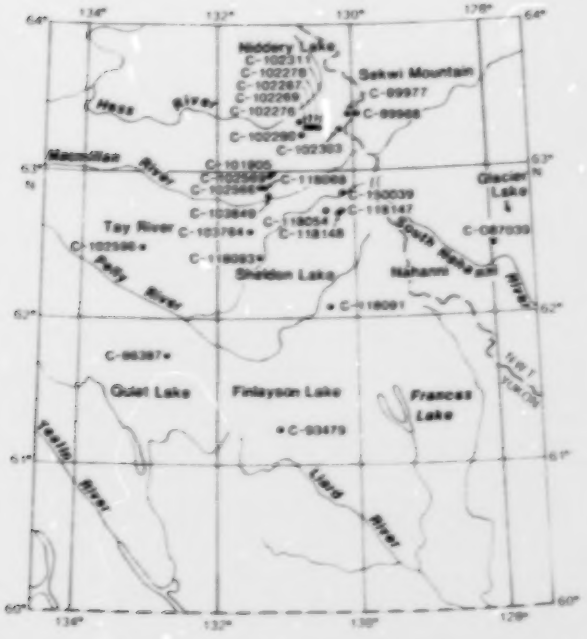

Figure 6. Ordovician conodont sample localities (solid circles) in map areas of the central Selwyn Basin (except Nahanni map area) and Cassiar Platform (Quiet Lake and Finlayson Lake map areas). GSC locality numbers are shown. Partly based on Tempelman-Kluit (1977b).

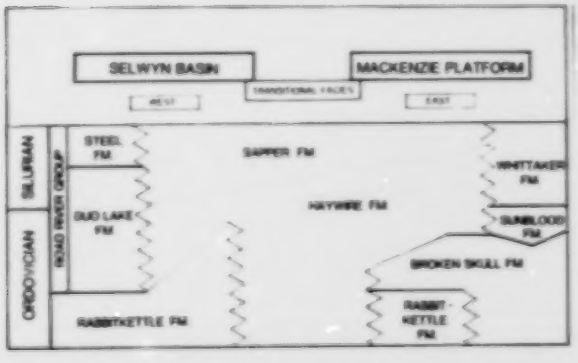

Figure 7. Generalized stratigraphy of Selwyn Basin, Mackenzie Platform and transitional strata (modified from Gordey, in press).

Previous data on Ordovician conodonts from the Selwyn Basin and adjacent platformal strata have been collected from the Nahanni map area (Tipnis et al., 1978; Landing et al., 1980) and Glacier Lake (Tipnis et al., 1978; Nowlan et al., 1988; Mitchell and Sweet, 1989) (Fig. 8). Tipnis et al. collected Ordovician conodonts from the Selwyn Basin as well as from transitional facies and from Mackenzie Platform carbonates. They found conodonts of North Atlantic aspect dominant in rocks of the Rabbitkettle Formation and the Road River Group, and that faunas of North American Midcontinent aspect occurred in the more westerly carbonates of the Broken Skull, Sun Blood, Esbataottine, and Whittaker formations. Landing et al. (1980) studied Lower Ordovician conodonts from the Rabbitkettle Formation near Broken Skull River. Mitchell and Sweet (1989) found conodonts typical of the Red River Province in samples from the Upper Ordovician part of the Whittaker Formation where it unconformably overlies Proterozoic rocks at the flank of Redstone Arch. Nowlan et al. (1988) collected conodonts across the Ordovician-Silurian boundary also from the Whittaker Formation near Avalanche Lake. Cecile (1982) listed Ordovician conodont faunas (determined by R.S. Tipnis), collected north of Niddery Lake and Sekwi Mountain from the Misty Creek Embayment of the Selwyn Basin. McCracken (1989) reported Ordovician conodonts from the Road River Group and from unnamed carbonate facies of northern Yukon Territory and northwest District of Mackenzie.

Figure 8. Sample localities (indicated by numbers and letters) of previous Ordovician conodont collections in map areas north and west of Nahanni map area. Index map modified from Tipnis et al. (1978) (numbers 1-8, sections A-R) with additional data from Landing et al. (1980), Nowlan et al. (1988) and Mitchell and Sweet (1989).

Broken Skull Formation

Conodonts from the Broken Skull Formation (Gabrielse et al., 1973) have been collected mostly from the Nahanni map area (Gordey, in press). Two samples come from Flat River and Sekwi Mountain map areas (Fig. 9). The Broken Skull Formation in the Nahanni area can be subdivided into two members: a lower dolostone member and an upper limestone member; locally, a third sandy carbonate member is recognized at the base. The formation ranges from Early to Middle Ordovician in age and is interpreted as representing shallow subtidal to deep subtidal sediments (Gordey, in press). Seventeen collections from the Broken Skull Formation

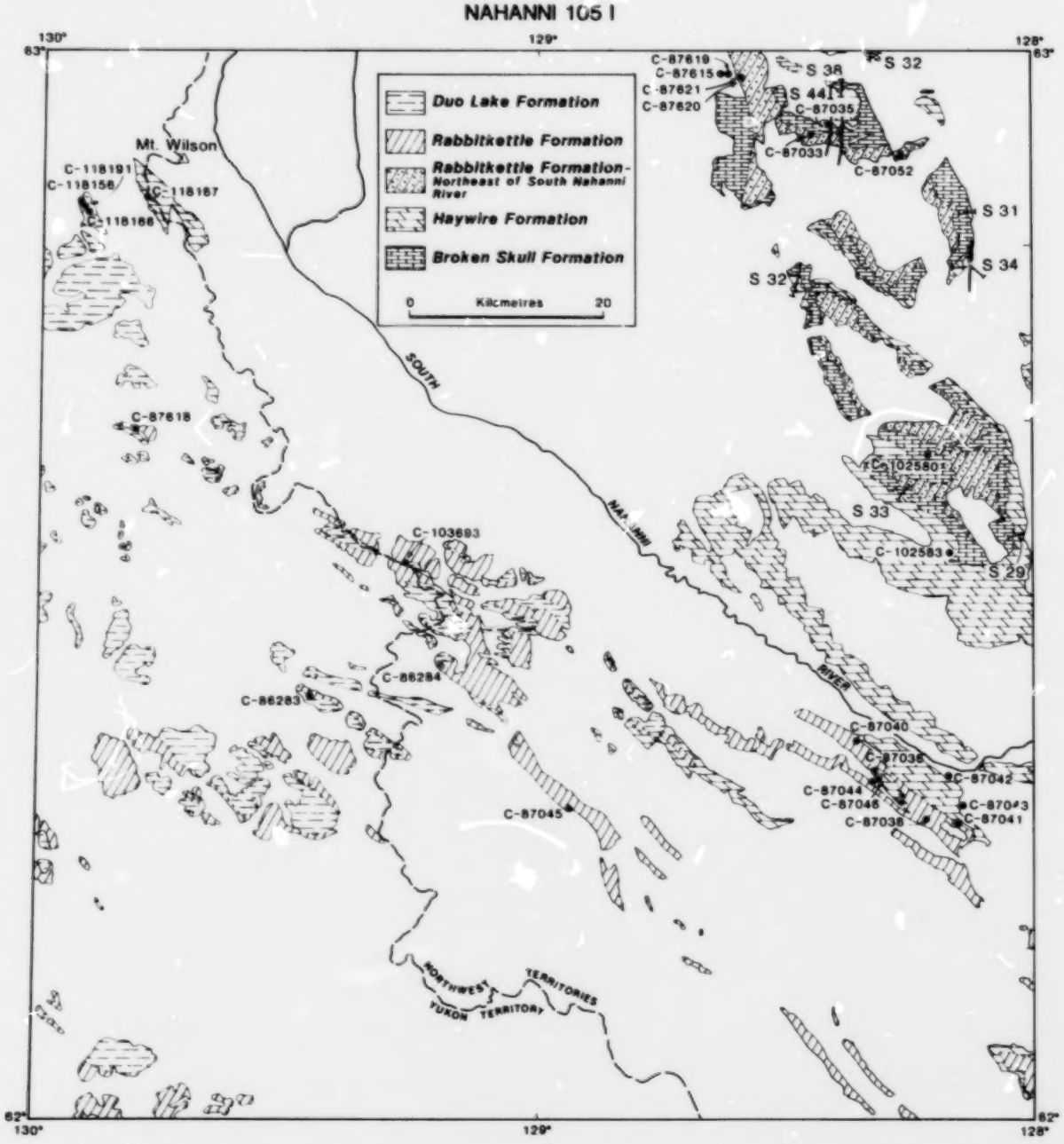

Figure 9. Sample localities and sections (solid circles) from Ordovician outcrops of Nahanni map area (modified from Gordey, in press). GSC locality numbers are shown.

comprise a total of 273 conodont specimens, representing 45 different species (Table 6). CAI values range between 5 and 6, rarely reaching 7.

Conodonts from the Broken Skull Formation are of mixed faunal affinity, most being of North Atlantic aspect, but some showing North American Midcontinent affinity. The oldest conodont faunas (Fig. 3) probably belong to Fauna D of Ethington and Clark (1971), as shown by an abundance of simple cones including *Drepanoistodus* sp. aff. *D. basiovalis*, *"Oistodus" inaequalis* Pander, *"Oneotodus" variabilis* Lindström, *Histiodella? donnae* Repetski, *Parapanderodus emarginatus* (Barnes and Poplawski), and *"Scolopodus" quadratus* Pander. *"Oneotodus" variabilis* s.f. is typical of Lower Ordovician limestone in the Balto-Scandian areas. *Drepanoistodus* sp. aff. *D. basiovalis* has been reported by Ethington and Clark (1981) from the Ibex area (Utah), as well as from the St. George Group (western Newfoundland, Stouge, 1982; his *Drepanoistodus* sp. A) as part of Fauna D. *Histiodella? donnae* has been found (Repetski, 1982) in rocks of similar age in the El Paso Group (Texas, New Mexico). The other species listed have been found in faunas of this interval, but their ranges extend into Fauna E.

Fauna E, or any of the younger intervals recognized by Ethington and Clark (1981), cannot be recognized with certainty in the Broken Skull Formation. The interval following Fauna D is of North Atlantic aspect and is defined by the zonal index fossil of the *Oepikodus evae* Zone. There is some evidence for reworking because species characteristic of the younger *Baltoniodus triangularis* and *B. navis* zones (e.g., *Ansella jemtlandica* (Löfgren) and *Drepanoistodus basiovalis* (Sergeeva)) co-occur with those typical of the *O. evae* Zone (e.g., *"Scolopodus" quadratus* and *O. evae*).

Except for the two species listed above, none of the Balto-Scandian zonal index fossils defining the interval between the *O. evae* Zone and the *P. serra* Zone have been found. Instead, the next younger interval recognized is the North American Midcontinent *Histiodella sinuosa* Zone (Sweet, 1988) or Fauna 3-4 of Sweet et al. (1971). The co-occurrence of *Histiodella sinuosa* (Graves and Ellison) with *Pygodus* sp. suggests an age closer to that of Fauna 4 than Fauna 3. In another sample, *H. sinuosa* is found together with *Tripodus laevis* Bradshaw and *"Microzarkodina" marathonensis* (Bradshaw), both of which are older (Fauna E-1), again suggesting the possibility of reworking.

Samples containing an indeterminable species of *Pygodus* represent an unspecified time interval from late Llanvirn through Llandeilo (Fauna 4-6). The youngest fauna is also non-specific, consisting of *Phragmodus* sp. and *Plectodina* sp. of Caradoc through Ashgill age.

Haywire Formation

The Haywire Formation has been newly defined by Gordey (in press) in the Nahanni map area and has also been recognized the in adjacent Glacier Lake map area. It comprises dominantly medium- to thick-bedded dolostone and minor limestone; locally, the formation is interbedded with basalt flows and tuffs. The Haywire Formation has complex relationships with the overlying Sapper Formation and the underlying Broken Skull or Rabbitkettle formations (Fig. 7). To the southwest, the Haywire Formation correlates with the Rabbitkettle Formation and the Road River Group of the basinal facies. In the Mackenzie Mountains, it is correlative with the Rabbitkettle, Broken Skull, Sunblood, and possibly the Whittaker formations. Fossil data indicate an Early Ordovician to Early Silurian age for the Haywire Formation, which is considered to be the outer shelf equivalent of the aforementioned formations. The dolomites are interpreted as deposits of shallow subtidal to intertidal environments. Depending on the site of deposition, the formation varies in thickness and age range.

All conodont collections from the Haywire Formation came from the Nahanni map area (Fig. 9) with the exception of GSC loc. C-87039, which comes from the Glacier Lake map area (Fig. 6). Twenty-seven collections contain 977 conodont elements, comprising 54 species (Table 7). CAI ranges from 5 to 6, with exceptional values of 4 and 7 (Appendix I).

The conodonts range from Arenig to Ashgill in age (Fig. 3). The oldest fauna is identified by the occurrence of *Acodus deltatus* Lindström, which is characteristic of the *A. deltatus - Macerodus dianae* Interval (Ethington and Clark, 1981), equivalent in age to late Fauna D of the Midcontinent (Ethington and Clark, 1971). *Acodus deltatus* occurs abundantly in Balto-Scandia just below the first occurrence of *Prioniodus elegans* Pander. However, the species ranges up into the early Middle Ordovician (Llanvirn), and is thus an ambiguous index fossil. Another collection with *Drepanoistodus* sp. aff. *D. concavus* (Branson and Mehl) and *Protopanderodus leei* Repetski is probably of the same age (late Fauna D). *Protopanderodus leei* has been reported from the Fauna D interval of the El Paso Group (New Mexico and Arizona; Repetski, 1982). *Drepanoistodus* sp. aff. *D. concavus* has been found in the Cow Head Group in western Newfoundland associated with *Prioniodus elegans* (Pohler et al., 1987). These equivocal faunas are followed by more reliable species of the *O. evae* Zone with *O. evae*, *Bergstroemognathus extensus* (Graves and Ellison), *Juanognathus variabilis* Serpagli, and *Acodus? sweeti* Serpagli. Fauna E is represented in a fauna yielding *Oepikodus communis* Ethington and Clark, associated with *Oneotodus costatus* Brandt and Ethington, *Ulrichodina deflexa* Furnish s.f., and *Protoprioniodus* sp., as well as with some of the Argentinian species listed above, namely *J. variabilis* and *A.? sweeti*.

Faunas of late Arenig to early Whiterock age cannot be identified because index fossils are lacking. The next younger interval is recognized as Fauna 2-3 on the basis of *Leptochirognathus* sp. A Tipnis et al., *Multioistodus compressus* Harris and Harris, and *Scandodus sinuosus* Mound. This is the only clear evidence for Whiterock/Llanvirn-Llandeilo age rocks; no other North Atlantic or Midcontinent index fossils are present. Many of the samples, however, probably fall into this same interval but contain only long-ranging species, e.g. *Drepanoistodus suberectus* (Branson and Mehl), and *Paroistodus? mutatus* (Branson and Mehl).

Table 6. Selwyn Basin; Broken Skull Formation

Map area	Nahanni															Flat R.	Selwyn Mtn.
Species/GSC loc. no.	C-083042	C-087747	C-092567	C-087746	C-087638	C-087034	C-087052	C-087035	C-102580	C-087048	C-087623	C-102578	C-087640	C-087639	C-087631	C-087037	C-087616
Acodus deltatus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6
A.? sweeni	–	–	–	–	–	–	–	7	–	–	–	–	–	–	–	–	–
"Acontiodus" sp.	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Areoda jamtlandica	–	–	–	–	–	–	–	1	–	–	9	–	–	–	–	–	–
A. sp.	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–
Cornuodus longibasis	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	–
Curtognathiform element	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Drepanodus arcuatus	–	–	–	8	–	2	–	–	–	–	–	–	–	–	–	–	–
Drepanodiform elements	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Drepanoistodus basovichi	–	–	–	8	–	–	–	1	–	–	–	5	–	–	–	–	–
D. sp. aff. D. basovichi	20	–	–	–	–	12	–	–	–	–	–	–	–	–	–	–	–
D. inconstans	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Histiodella? donnae	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
H. sinuosa	–	–	–	–	–	–	–	–	2	–	–	1	–	–	–	–	–
Juanognathus variabilis	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–
Fahraeusodus marathonensis	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–
Oepikodus evae	–	5	–	–	–	–	–	7	–	–	–	–	–	–	–	–	–
Ostodus? inaequalis s.l.	7	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–	–
O. sp. aff. O. inaequalis	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–
O. lanceolatus	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–
Ozarkodiform elements	–	–	4	–	–	–	–	–	–	–	–	–	–	2	–	–	–
Oneotodus spp.	–	–	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–
"O." variabilis	11	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Parapaltodus mystus	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–
P. sp.	30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Parapanderodus asymmetricus	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–
P. emarginatus	–	–	–	–	–	6	–	–	–	–	–	–	–	–	–	–	–
Paroistodus originalis	–	–	–	2	–	3	–	–	–	–	–	–	–	–	–	–	–
P. parallelus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	12	–
Periodon aculeatus	–	–	–	–	–	–	–	10	–	–	1	–	20	–	–	31	–
Phragmodus? sp.	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–
Plectodina? sp.	–	–	–	–	–	–	3	–	–	4	–	–	–	–	–	–	–
Promissodus elegans	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–
Protopanderodus rectus	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–
P. sp.	–	–	–	1	–	–	–	3	–	–	–	–	–	–	–	1	–
Protopriniodus sp.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Periconteodus cryptodens	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–
Pygodus sp.	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–
Reutterodus andinus	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–
"Scandodus" robustus	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–
Scandodiform element	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Scolopodus bellus	1	–	–	–	–	–	–	10	–	–	–	–	–	–	–	–	–
"S." quadratus	–	–	–	1	–	1	–	10	–	–	–	–	–	–	–	–	–
S. sulcatus?	2	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–
Stelicophate element, nov.?	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–
Tripodus laevis	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–
Utahodina deflexa	–	–	–	–	–	1	–	–	–	–	–	2	–	–	–	–	–
Walliserodus australis	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–
W. ethingtoni	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–
Indet. conform elements	7	–	–	–	2	–	–	–	–	–	–	–	2	–	–	–	–
Indet. paraconodont?	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Ramiform fragments	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–

Caradocian rocks, in contrast, are unambiguously represented by *Amorphognathus tvaerensis* Bergström. This North Atlantic zonal index fossil is accompanied by Midcontinent forms such as *Phragmodus undatus*. No younger *Amorphognathus* species are present in the Haywire Formation. Instead, Midcontinent species indicative of Faunas 11-12 represent the youngest rocks in the sequence with *Plectodina tenuis* (Branson and Mehl), *Aphelognathus politus* Hinde, *Ozarkodina sesquipedalis* Nowlan and McCracken, and *Belodina confluens* Sweet (Nowlan et al., 1988).

Rabbitkettle Formation

The Rabbitkettle Formation (Gabrielse et al., 1973) is typically represented by thin-bedded tan-orange weathering limestone ranging in age from Late Cambrian through Tremadocian. It is largely equivalent to the Broken Skull Formation, but locally (in the northeast of Nahanni map area) it is overlain by it. In more basinward strata, the Rabbitkettle Formation is overlain by the Road River Group. The formation is considered to have been deposited in a quiet off-shelf environment. Rocks of the Rabbitkettle Formation have been collected from Nahanni, Niddery Lake, Tay River, and Sekwi Mountain map areas (Figs. 6, 9). The collection from the Nahanni map area is the largest, with 13 samples comprising 404 conodonts of 28 different species (Table 8). They range in age from Late Cambrian to Llandeilo, possibly Caradoc (Fig. 3). The oldest collections fall into the *C. proavus* Zone and are Late Cambrian or earliest Canadian in age. The precise biostratigraphic position can be assigned only when the current debate over the Cambro-Ordovician boundary has been resolved (Barnes, 1988; Miller, 1988). Should the boundary be drawn at the first occurrence of true graptolites (correlating with the *Cordylodus lindstroemi* conodont Zone), then the Rabbitkettle fauna with *C. proavus* Muller and *Eoconodontus notchpeakensis* Miller would be Late Cambrian.

The *C. proavus* fauna is followed by an assemblage containing *C. intermedius* and *Teridontus nakamurai* (Nogami), which suggests the *C. intermedius* Zone of latest Cambrian or Early Ordovician age. Both *C. intermedius* and *T. nakamurai* range up into Fauna C (Tremadoc; Sweet, 1988). Late Tremadoc or Arenig rocks of the Rabbitkettle Formation are indicated by the occurrence of *Acodus deltatus* together with *Acontiodus* sp. aff. *A. latus* Pander. The range of *A. deltatus* was discussed earlier; *A.* sp. aff. *A. latus* is probably an element of the apparatus of *Walliserodus australis* Serpagli or *W. comptus* (Branson and Mehl) (Ji Z., pers. comm., 1988). *Walliserodus australis* occurs first with *Paracordylodus gracilis* Lindström in rocks assigned to the *P. elegans* Zone in Argentina (Serpagli, 1974). The closely related species *W. comptus* extends into the *M. dianae - A. deltatus* interval (late Fauna D) (Ethington and Clark, 1981). Neither species has been reported unequivocally from strata younger than the *O. evae* Zone (Fauna E).

The interval that follows, from the late Arenig into the Llanvirn, is not well documented by means of conodonts. The occurrence of *Pygodus* sp. demonstrates that late Llanvirn to Llandeilo rocks are present in rocks assigned to the Rabbitkettle Formation. A possibly younger collection contains *Amorphognathus* sp., a genus that ranges from Llanvirn to Ashgill (Bergström, 1983). It is accompanied by a species of *Periodon* that appears to be more advanced than *Periodon aculeatus*, but is not its successor *P. grandis* (Ethington). Harris et al. (1979) observed a species of *Periodon*, *P.* sp. aff. *P. grandis*, which occurred together with *Amorphognathus ordovicicus* Branson and Mehl and *Paroistodus? mutatus* in Fauna 11-12 of the Toquima Range (Nevada). Unfortunately, the poor preservation of the fauna in this sample makes assignment impossible.

Eight collections from the Niddery Lake map area range in age from latest Cambrian to Llanvirn. The 138 specimens have CAI values of 5 or slightly higher (5+) and belong to 16 different species. The oldest fauna contains *Cordylodus intermedius* together with *Eoconodontus notchpeakensis*, which places the fauna in the *C. intermedius* Zone. Another collection from Niddery Lake contains *Cordylodus drucei* Miller, which is characteristic of Fauna B (Miller, 1980). An isolated collection from Rabbitkettle strata of the Tay River map area (S.P. Gordey, pers. comm., 1988) includes *Rossodus manitouensis* Repetski and Ethington, *Variabiloconus bassleri*, and a fragment of a possible *Chosonodina* sp. This fauna is indicative of the late Tremadoc (Fauna C). The Arenig interval is not unequivocally represented in Rabbitkettle collections from the Niddery Lake map area. The occurrence of *Ansella jemtlandica* together with *Polonodus*? sp., *Protopanderodus* sp. cf. *P. varicostatus* (Sweet and Bergström), *Periodon aculeatus* and *Protopanderodus rectus* Lindström suggests a late Arenig or early Llanvirn age for some of the strata (Löfgren, 1978; Bergström and Orchard, 1985).

A small collection of indeterminable simple cone species from the Sekwi Mountain map area is probably Early Ordovician in age.

Road River Group

The Road River Group has been subdivided by Gordey (in press) into an older Duo Lake Formation (Cecile, 1982) and a younger Steel Formation. The Duo Lake Formation is underlain by the Rabbitkettle Formation and is overlain by the Steel Formation (Fig. 7). It ranges from lower Arenig to Wenlock in age and is typically represented by black graptolitic shale and chert. The depositional environment was probably a quiet, euxinic off-shelf setting.

Thirteen conodont collections are available from the Duo Lake Formation of the central Selwyn Basin. Most come from the Sheldon Lake map area; one is from the Nahanni map area (Figs. 6, 9). The single Nahanni sample contained *Amorphognathus tvaerensis* and *Polyplacognathus ramosus* Stauffer, demonstrating an early Caradoc age (*A. tvaerensis* Zone) for this fauna (Bergström, 1983).

The 12 collections from Sheldon Lake include 379 conodont specimens belonging to 24 different species, with CAI values of 5 (Table 9, Appendix I). The oldest collection is assigned to the *C. proavus* Zone (Fig. 3). *Cordylodus intermedius* associated with *Variabiloconus bassleri* and

Table 7. Selwyn Basin, Haywire Formation.

Map area	Glac.L.	Nahanni										
Species/GSC loc. no.	C-087039	C-087042	C-087043	C-087036	C-087046	C-102583	C-092560	C-092559	C-092556	C-092555	C-092554	C-087050
Acodus deltatus	–	–	–	–	6	–	–	–	–	–	9	–
A.? sweeti s.f.	–	–	–	–	–	–	–	–	–	3	5	–
A. sp.	–	–	–	–	–	–	–	–	–	3	–	–
Acontiodus sp. aff. *A. latus*	–	–	–	–	–	–	–	–	–	–	1	–
Amorphognathus tvaerensis	–	27	–	–	–	–	–	–	–	–	–	–
Aphelognathus politus	–	–	–	–	–	–	–	–	–	–	–	5
Belodina compressa	4	–	–	–	–	–	–	–	–	–	–	–
B. confluens	–	–	–	–	–	–	–	–	–	–	–	5
B. sp.	–	–	2	–	–	–	–	–	–	–	–	–
Bergstroemognathus extensus	–	–	–	2	–	–	–	–	–	–	–	–
Drepanodontiform elements	–	–	–	–	–	–	–	–	–	–	9	–
Drepanodus arcuatus	–	–	–	–	–	–	–	–	–	10	10	–
Drepanoistodus concavus	–	–	–	–	–	–	–	–	–	3	–	–
D. sp. aff. *D. concavus*	–	–	–	–	–	53	–	–	–	–	.	–
D. suberectus	3	23	19	–	–	–	–	–	–	–	1c	–
D. sp.	–	–	–	–	6	–	–	–	–	2	–	–
Glyptoconus quadraplicatus	–	–	–	–	–	–	–	–	–	3	20	–
Juanognathus variabilis	–	–	–	1	–	–	–	–	–	–	3	–
Leptochirognathus sp. A Tipnis et al.	–	–	–	–	–	–	–	9	–	–	–	–
Multioistodus compressus	–	–	–	–	–	–	–	3	–	–	–	–
Oepikodus communis	–	–	–	–	–	–	–	–	–	3	–	–
Oneotodus costatus	–	–	–	–	–	–	–	–	1	1	–	–
Oulodus sp.(p)	–	–	–	–	–	–	5	–	–	–	–	–
Ozarkodina sesquipedalis	–	–	–	–	–	–	–	–	–	–	–	4
O.? sp.	1	–	–	–	–	–	–	–	–	–	–	–
Panderodus sp.	23	9	9	–	–	–	3	–	–	–	–	–
Parapanderodus emarginatus	–	–	–	–	–	–	–	–	–	1	4	–
Periodon aculeatus	20	6+	1	–	–	–	–	–	–	–	–	–
Phragmodus undatus	–	38	–	–	–	–	–	–	–	–	–	–
P. n. sp. Barnes	–	–	–	–	–	–	–	–	–	–	–	–
Plectodina? sp.	2	–	–	–	–	–	2	–	–	–	–	1
Polyplacognathus ramosus	–	12	–	–	–	–	–	–	–	–	–	–
Protopanderodus gradatus	–	–	–	4	–	–	–	–	–	–	–	–
P. sp.	–	2	3	–	–	–	–	–	–	–	–	–
P.? leei	–	–	–	–	–	1	–	–	–	–	–	–
Protoprioniodus sp.	–	–	–	–	–	–	–	–	–	1	–	–
Pteracontiodus sp.	–	–	–	–	–	–	–	3	–	–	–	–
Scandodontiform element	–	–	–	–	–	–	–	–	–	–	–	–
Scolopodus? abruptus	–	–	–	–	–	–	–	–	–	–	1	–
S. paracornuformis	–	–	–	–	–	–	–	–	–	–	1	–
Scolopodiform element	–	–	–	–	–	–	–	–	–	1	–	–
Tripodus sp.	–	–	–	–	–	–	–	–	–	–	8	–
Ulrichodina deliexa	–	–	–	–	–	–	–	–	–	1	–	–
Walliserodus australis	–	–	–	3	–	–	–		1	3	5	–

Table 7. continued

Map area	Nahanni											
Species/GSC loc. no.	C-087049	C-087628	C-087627	C-087626	C-087625	C-087624	C-102579	C-087748	C-087643	C-087642	C-087641	C-087634
Acodus? sweeti	—	—	—	—	—	—	—	2	—	—	—	—
Amorphognathus? sp.	—	—	—	—		4	—	—	—	—	—	—
Aphelognathus politus	85	—	—	—	—	—	—	—	—	—	—	—
A. sp.	—	5	—	—	—	—	—	—	3	—	—	5
Belodina compressa	—	—	—	—	—	1	—	—	—	—	—	—
B. confluens	43	4	—	—	—	—	—	—	4	—	—	—
B. sp.	—	—	3	—	—	—	—	—	—	2	1	—
Bergstroemognathus extensus	—	—	—	—	—	—	—	2	—	—	—	—
Distacodiform elements	—	—	3	—	2	—	—	—	—	—	—	—
Drepanodiform elements	—	—	—	—	—	4	—	—	—	—	—	—
Drepanodus arcuatus	—	—	—	—	—	—	2	5	—	—	—	—
Drepanoistodus basiovalis	—	—	—	—	—	—	—	3	—	—	—	—
D. suberectus	10	—	—	—	—	—	—	—	—	—	1	—
D. sp.	—	—	—	—	—	—	—	—	—	—	—	1
Eocarniodus? sp.	—	—	—	—	—	4	—	—	—	—	—	—
Juanognathus variabilis	—	—	—	—	—	—	—	1	—	—	—	—
Leptochirognathus sp. A Tipnis et al.	—	—	—	—	—	—	5	—	—	—	—	—
Multioistodus compressus	—	—	—	—	—	—	12	—	—	—	—	—
Oepikodus evae	—	—	—	—	—	—	—	74	—	—	—	—
Oepikodiform element	—	—	1	—	—	—	—	—	—	—	—	—
Oistodus lanceolatus	—	—	—	—	—	—	—	8	—	—	—	—
Oulodus? sp.	1	—	—	—	—	—	—	—	—	2	—	3
Ozarkodina sesquipedalis	11											
Panderodus sp.	58	7	4	—	—	1	—	—	11	1	1	3
Paroistodus? mutatus	3	—	2	—	—	—	—	—	—	1	?	—
Periodon aculeatus	—	—	—	—	—	—	—	17	—	—	—	—
P. flabelium	—	—	—	—	—	—	—	2	—	—	—	—
P.? sp.	—	—	—	—	—	2	—	—	—	—	—	—
Plectodina tenuis	40	—	—	—	—	—	—	—	—	—	—	—
P.? sp.	—	—	—	5	—	—	—	—	—	—	—	—
Protopanderodus rectus	—	—	—	—	—	—	—	8	—	—	—	—
Protoprioniodus sp.	—	—	—	—	—	—	8	—	—	—	—	—
"Pseudooneotodus" mitratus	1	—	—	—	—	—	—	—	—	—	—	—
Scandodus sinuosus	—	—	—	—	—	—	10	—	—	—	—	—
"Scolopodus" quadratus	—	—	—	—	—	—	—	4	—	—	—	—
Staufferella falcata	1	—	—	—	—	—	—	—	—	—	—	—
Walliserodus australis	—	—	—	—	—	—	—	13	—	—	—	—

Map area	Nahanni		
Species/GSC loc. no.	C-087633	C-087632	C-087644
Aphelognathus sp.	6	—	—
Belodina sp.	—	—	—
Dapsilodus sp.	—	—	—
Drepanoistodus? venustus	—	—	—
Eoplacognathus? sp.	—	3	—
Panderodus? sp.	1	—	2
Periodon? sp.	—	3	—
Walliserodus sp.	—	2	—
Ramiform fragments	—	—	2

Table 8. Selwyn Basin, Rabbitkettle Formation

Map area	Nahanni										
Species/GSC loc. no.	C-118166	C-118191	C-118167	C-118156	C-087033	C-087620	C-087621	C-086283	C-087045	C-087618	C-087040
Acodus deltatus	—	—	—	—	—	10	—	—	—	—	—
Aconiodus sp. aff. *A. latus*	—	—	—	—	—	1	—	—	—	—	—
Amorphognathus sp.	—	—	—	—	—	—	—	—	28	—	—
Ansella sp.	—	—	—	—	—	—	—	—	—	—	2
Cordylodus intermedius	—	—	6	—	—	—	—	—	—	—	—
C. lindstroemi	—	—	2	—	—	—	—	—	—	—	—
C. proavus	4	48	—	—	16	—	—	—	—	—	—
C. sp.	—	—	—	1	—	—	—	—	—	—	—
Drepanoistodus suberectus	—	—	—	—	—	—	—	—	8	—	—
D. sp.	—	—	—	—	—	—	—	1	—	1	b
Eoconodontus notchpeakensis	—	3	—	—	—	—	—	—	—	—	—
Eoplacognathus? sp.	—	—	—	—	—	—	—	—	—	—	—
Monocostodus sp.	—	—	1	—	—	—	—	—	—	—	—
Oneotodus sp.	—	—	—	—	—	—	1	—	—	—	—
Panderodus sp.	—	—	—	—	—	—	—	—	5	—	11
Paroistodus? mutatus	—	—	—	—	—	—	—	—	—	—	8
Periodon aculeatus	—	—	—	—	—	—	—	—	—	—	—
P. sp.	—	—	—	—	—	—	—	—	30	—	2
Phragmodus undatus	—	—	—	—	—	—	—	—	5	—	—
Procnodontus? sp.	—	—	—	—	7	—	—	—	—	—	—
Protopanderodus robustus	—	—	—	—	—	—	—	—	10	—	—
P. sp.	—	—	—	—	—	—	—	—	—	—	4
Scabbardella altipes	—	—	—	—	—	—	—	—	12	—	—
Teridontus nakamurai	—	—	—	—	10	—	—	—	—	—	—
Utahconus sp.	—	—	4	—	—	—	—	—	—	—	—
Walliserodus? sp.	—	—	—	—	—	—	—	—	2	—	—
Indet. coniform elements	12	—	—	3	—	—	—	—	—	1	—

Map area	Nahanni		Niddery Lake								Tay R.	Sekwi
Species/GSC loc. no.	C-087044	C-087038	C-102303	C-102290	C-089977	C-102267	C-102269	C-102276	C-102278	C-102311	C-102596	C-089968
Acodiform element	—	—	—	—	1	—	—	—	—	1	—	1
Acontiodus? sp.	—	—	—	—	—	—	—	—	—		1	—
Amorphognathus sp.	37	—	—	—	—	—	—	—	—	—	—	—
Ansella jemtlandica	—	—	—	—	—	—	—	1	3	—	—	—
A. sp.	—	4	—	—	—	—	—	—	—	—	—	—
Chosonodina sp.	—	—	—	—	—	—	—	—	—	—	1	—
Cordylodus intermedius	—	—	—	24	—	—	—	—	—	—	—	—
C. proavus	—	—	—	—	—	—	—	—	—	—	—	—
C. drucei	—	—	74	—	—	—	—	—	—	—	—	—
Drepanodus arcuatus	—	—	—	—	1	—	—	1	—	—	—	—
Drepanoistodus suberectus	6	—	—	—	—	—	—	—	—	—	—	—
D. sp.	—	16	—	—	—	—	—	—	—	—	—	—
Eoconodontus notchpeakensis	—	—	—	2	—	—	—	—	—	—	—	—
Eoplacognathus? sp.	—	2	—	—	—	—	—	—	—	—	—	—
Oistodiform elements	—	—	—	—	—	1	—	—	1	—	—	2
Ozarkodina? sp.	1	—	—	—	—	—	—	—	—	—	—	—
Panderodus sp.	3	3	—	—	—	—	—	—	—	—	—	—
Paroistodus? mutatus	—	12	—	—	—	—	—	—	—	—	—	—
P.? sp.	2	—	—	—	1	—	1	—	—	1	—	—
Periodon aculeatus	10	22	—	—	—	—	—	1	3	—	—	—
P. sp.	—	—	—	—	—	—	3	—	—	—	—	—
Polonodus? sp.	—	—	—	—	—	—	2	—	—	—	—	—
Protoconodont? indet.	—	—	2	—	—	—	—	—	—	—	—	1
Protopanderodus? giganteus	—	—	—	—	—	—	1	—	—	—	—	—
P. rectus	—	—	—	—	—	—	—	—	1	—	—	—
P. robustus	—	—	—	—	—	—	—	—	—	3	—	—
P. varicostatus	—	—	—	—	—	—	4	—	—	—	—	—
P. sp. cf. *P. varicostatus*	—	12	—	—	—	—	—	—	—	—	—	—
P. sp.	2	—	—	—	—	—	—	—	2	—	—	—
Pygodus sp.	—	4	—	—	—	—	—	—	—	—	—	—
Rossodus manitouensis	—	—	—	—	—	—	—	—	—	—	6	—
Scandodiform element	—	—	—	—	—	—	—	—	—	—	—	1
"Scolopodus" quadratus	—	—	—	—	1	—	—	—	—	—	—	—
Variabiloconus bassleri	—	—	—	—	—	—	—	—	—	—	15	—
Indet. coniform elements	—	—		—	—	—	—	—	3	—	—	—
Indet. ramiform elements	2	—	—	—	—	—	—	—	—	1	—	1

Table 9. Selwyn Basin; Road River Group, Duo Lake Formation.

Map area	Nahanni	Sheldon Lake											
Species/GSC loc. no.	C-087041	C-118147	C-118148	C-118054	C-150039	C-118093	C-103764	C-102565	C-103849	C-118068	C-118091	C-102569	C-101905
Acodiform elements	–	–	–	–	–	–	–	1	–	–	–	–	–
"Acontiodus" sp.	–	–	–	–	–	1	1	–	–	–	–	–	–
Amorphognathus tvaerensis	25+	–	–	–	–	–	–	–	–	–	–	–	–
Ansella nevadensis	–	–	–	–	–	–	–	–	–	–	–	1	–
Cahabagnathus friendsvillensis	–	–	–	–	–	–	–	–	–	–	–	1	–
Cordylodus angulatus	–	–	–	–	–	–	8	–	–	–	–	–	–
C. proavus	–	–	–	6	1	3	–	–	–	–	–	–	–
C. sp.	–	–	–	–	–	–	–	–	–	1	–	–	–
Drepanodus arcuatus	–	–	–	–	–	–	–	–	–	2	–	–	–
Drepanoistodus suberectus	4	–	–	–	–	–	–	–	–	3	–	10	–
D. sp.	–	–	–	–	–	–	5	–	–	–	–	–	–
Eoconodontus notchpeakensis	–	–	–	2	–	–	–	–	–	–	–	–	–
Eoplacognathus sp.	–	–	–	–	–	–	–	–	–	7	–	2	–
Histiodella sp.	–	–	–	–	–	–	–	–	–	1	–	–	–
Panderodus? sp.	2	–	–	–	–	–	–	–	–	–	–	–	–
Paroistodus? sp.	2	–	–	–	–	–	–	–	–	–	–	–	–
P. sp.	–	–	–	–	–	–	–	–	–	2	–	2	–
Periodon aculeatus	–	–	–	–	–	–	–	–	4	73	–	–	–
P. sp.	21	–	–	–	–	–	–	–	–	–	–	78	1
Phragmodus undatus	19	–	–	–	–	–	–	–	–	2	–	–	–
Polyplacognathus ramosus	5+	–	–	–	–	–	–	–	–	–	–	–	–
"Prooneotodus" lenus	–	10	1	–	–	–	–	–	–	–	–	–	–
Protopanderodus robustus	–	–	–	–	–	–	–	–	–	21	–	27	1
P. sp.	3	–	–	–	–	–	–	–	–	–	–	–	–
Pygodus anserinus	–	–	–	–	–	–	–	–	–	–	–	66	–
P. sp.	–	–	–	–	–	–	–	–	–	2	–	–	–
"Scolopodus" quadratus	–	–	–	–	–	–	–	1	–	–	–	–	–
Spinodus spinatus	–	–	–	–	–	–	–	–	–	3	–	2	–
Tendontus nakamurai	–	3	–	–	–	3	–	–	–	–	–	–	–
Variabiloconus bassleri	–	–	–	–	–	–	2	–	–	–	–	–	–
Walliserodus ethingtoni	–	–	–	–	–	–	–	–	–	2	–	–	–
Indet. conform elements	–	3	1	4	–	6	–	1	1	–	3	–	1

Table 10. Selwyn Basin, Sapper Formation.

Map area	Nahanni			
Species/GSC loc. no.	C-087615	C-087619	C-087629	C-087047
Amorphognathus sp.	–	–	–	20
Aphelognathus politus	5	–	–	–
Belodella? sp.	–	–	2	–
Belodina compressa	–	–	–	2
B. sp.	–	–	–	2
Drepanoistodus suberectus	8	–	–	9
Panderodus serratus	–	–	1	–
P. sp.	27	–	21	21
P.? mutatus	–	–	–	5
P.? sp.	–	–	2	–
Phragmodus undatus	1	–	–	–
Protopanderodus robustus	–	–	–	2
P.? sp.	–	3	–	–
Staufferella falcata	–	–	1	–
Walliserodus sp. cf. *W. amplissimus*	3	–	–	–
Milaculum sp.	–	–	1	–

Drepanoistodus sp. suggests a correlation with Fauna C of the Midcontinent zonation. As with the Rabbitkettle Formation, the Arenig is not well represented; only two collections contain species that may fall into this interval: one with *"Scolopodus" quadratus* may represent Fauna D or E, the other with *Periodon aculeatus* is probably younger (the species ranges from middle Arenig to Caradoc). A more precise date can be given to a fauna consisting of *Spinodus* sp., *Walliserodus ethingtoni*, (Fåhraeus) and *Periodon aculeatus*, based on the presence of *Spinodus*, a genus that is restricted to an interval from late Arenig to Llanvirn (Bergström and Orchard, 1985). The youngest collection is identified by the presence of *Pygodus anserinus* Lamont and Lindström, which is Llandeilo (*P. anserinus* Zone) in age (Bergström, 1971). This fauna is accompanied by species of *Cahabagnathus* and *Eoplacognathus*.

Sapper Formation

The Sapper Formation comprises siltstone, calcareous siltstone and limestone and overlies the Road River Group in the west and the Haywire Formation to the east. The formation is considered to be a transitional facies between the shelf carbonates of the Mackenzie Platform and the basinal facies of the Selwyn Basin.

Four Ordovician conodont collections were recovered from strata assigned to the Sapper Formation in the Nahanni map area (Fig. 9; Gordey, in press). The collections include 135 specimens belonging to 15 species (Table 10) with CAI values of 5 to 6 (Appendix I). Most of the collections are Late Ordovician in age, as shown by the occurrence of *Aphelognathus politus*, *Staufferella falcata* Sweet, Thompson, and Satterfield, and *Panderodus serratus* Rexroad. Less well constrained is a collection with *Belodina compressa* Branson and Mehl and other long-ranging species which could be as old as early Caradoc (Fauna 7; Sweet et al., 1971).

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APPENDIX

The data listed in the Appendix refer to: GSC locality number, sample location and locality, field party leader and field number, conodont color alteration index (CAI), and age of the conodont fauna recovered. Nahanni number refers to conodont collection number in Gordey (in press)

ALEXANDER TERRANE

Dezadeash map area

All samples were collected from map unit "ODcs" except GSC loc. C-142604, which comes from map unit "Psp".

GSC loc. C-086303. Lat. 60°06′11"N, Long. 137°49′40"W; on northeast-"trending" ridge due west of peak 1978 m (6490 ft), north of Alsek River (above Bates River). C.J. Dodds, 1979; 4-CAd 79. CAI - 5. Age - Ordovician.

Tatshenshini River map area

GSC loc. C-142608. Valley bottom approximately 7 km southeast of confluence of Michael Creek and O'Connor River. C.J. Dodds, 1986; 86-DGA-57-1. Age - Late Cambrian-Early Ordovician.

GSC loc. C-086293. Lat. 59°58′32"N, Long. 137°29′57"W; southeast end of Alsek Range, 3.5 km east-southeast of Peak 7834 ft (2387 m). B. Jacobson, 1978; 73-CAd-J 78-1. CAI - 5. Age -Ordovician.

GSC loc. C-102154. Lat. 59°53′42"N, Long. 137°59′55"W; approximately 13.5 km north (340) of start of Turnback Canyon on north side of Alsek River. D. Brown, 1981; 49-CAb-81-1. Age - Arenig to Ashgill.

GSC loc. C-102150. Lat. 59°52′40"N, Long. 137°58′36"W; above Turnback Canyon; approximately 4.75 km north of the start of Turnback Canyon. C.J. Dodds, 1981; 36-CAd-81-1. CAI - 5. Age - Probably Ordovician-Silurian.

GSC loc. C-102643. Lat. 59°40′N, Long. 137°46′W; Windy Craggy. K.M. Dawson, 1983; 83-2739. CAI - ~6. Age - Probably Ordovician.

GSC loc. C-142604. East side mid-Tkope River valley. C.J. Dodds, 1986; 86-DGA-27-1. CAI - 6. Age - Ordovician(?).

QUESNEL TERRANE

Penticton map area

All samples were collected from limestone assigned to the Old Tom - Shoemaker Assemblage.

GSC loc. C-149527. Lat. 49°18′20"N, Long. 119°49′03"W; north of Cedar Creek. D.J. Tempelman-Kluit, 1986; 86-TO-34B. CAI - 5-6-7. Age - Ordovician.

GSC loc. C-158537. Lat. 49°18′N, Long. 119°49′50"W; north of Cedar Ranch. J.C. Milford, 1982. CAI - 5. Age - Middle to Late Ordovician.

GSC loc. C-158484. Lat. 49°18′20.5"N, Long. 119°49′03.4"W; north of Cedar Creek. M.J. Orchard, 1988. 88-OF Ced 2. CAI - 6. Age - Middle to Late Ordovician.

GSC loc. C-158485. Lat. 49°18′25"N, Long. 119°49′25"W; north of Cedar Creek. M.J. Orchard, 1988; 88-OF Ced 3. CAI - 5. Age - Middle to Late Ordovician.

GSC loc. C-158488. Lat. 49°18′30"N, Long. 119°49′04"W; north of Cedar Creek. M.J. Orchard, 1988; 88-OF Ced 6. CAI - 6-7. Age - Middle to Late Ordovician.

CASSIAR PLATFORM

Finlayson Lake map area (map unit "uCOc")

GSC loc. C-093479. Lat. 61°16′29.4"N, Long. 131°12′30.3"W; D.J. Tempelman-Kluit, 1976; TOA-76-38A. Age - Ordovician, probably Middle or Late.

Quiet Lake map area (map unit "SDdq")

GSC loc. C-086387. TOR 73-285B IV. Lat. 61°46′N, Long. 132°43′40"W; 15.5 km west-northwest of Mount Green. CAI - 4.5?. Age - Ordovician.

NORTHERN SELWYN BASIN

Dawson map area

All samples were collected from sediments of the undivided Road River Group.

GSC loc. C-102215. Lat. 64°34′N, Long. 139°35′W; 22 km southeast of Mount Harper; slight bench north of 4200 ft (1280 m) saddle. R.I. Thompson, 1981; 81-TWR-36-2A. Age - Cambrian-Ordovician.

GSC loc. C-101605. Lat. 64°15′10"N, Long. 138°14′04"W; Upper Klondike River. R.I. Thompson, 1985; 85-TW-23. Age - Late Cambrian-Early Ordovician.

GSC loc. C-101606. Lat. 64°15′06"N, Long. 138°14′16"W; Upper Klondike River. R.I. Thompson, 1985; 85-TW-24. CAI - 5. Age - Ordovician, Tremadoc.

GSC loc. C-101611. Lat. 64°13′48"N, Long. 138°15′43"W; Lee Creek. R.I. Thompson, 1985; 85-TW-30. Age - Early Ordovician, Tremadoc.

GSC loc. C-101475. Lat. 64°09′65"N, Long. 138°07′27"W; Lee Creek. R.I. Thompson, 1986; 86-TW-R-28-2. Age - Early Ordovician, Tremadoc, Fauna C.

GSC loc. C-101574. Lat. 64°41′20"(25")N, Long. 138°44′47"(30")W; Seela Pass. R.I. Thompson, 1982; 82-TW-265. CAI - 5-6. Age - Middle Ordovician.

GSC loc. C-103896. Lat. 64°32'03"N, Long. 138°10'53"W; Rein Barite. R.I. Thompson, 1983; 83-TW-77. CAI - 5-6?. Age - Middle Ordovician, probably Llanvirn, *Pygodus serra* Zone.

GSC loc. C-101507. Lat. 64°54'50"N, Long. 139°33'30"W; Headwaters of Monster River. R.I. Thompson, 1984; 84TW-105B. CAI - 4-5. Age - Middle Ordovician, probably Llanvirn, *Pygodus serra* Zone.

GSC loc. C-101668. Lat. 64°38'20"N, Long. 139°02'40"W;. R.I. Thompson, 1985; 85-TW-202. Age - Ordovician, Arenig to Caradoc.

GSC loc. C-101697. Lat. 64°13'49"N, Long. 138°10'05"W; Lee Creek. R.I. Thompson, 1985; 85-TW-329. Age - Ordovician, Llanvirn, *Pygodus serra* Zone.

KECHIKA BASIN

Kechika map area

All samples were collected from rocks assigned to the undivided Road River Group, unless otherwise specified.

GSC loc. C-118888. Lat. 58°03'N, Long. 126°06'W; Driftpile Creek. K.M. McClay, 1985; 85-OF-M-66. Age - Ordovician.

Tuchodi Lakes map area

GSC loc. C-118049. Lat. 58°03'44"N, Long. 125°54'00"W; Driftpile Creek-Mt. Waldemar, close to top of peak. K.M. McClay, 1985; 85-OF-M-1. CAI - 5. Age - Middle Ordovician, Llanvirn, *Pygodus serra* Zone.

GSC loc. C-118916. Lat. 58°03'00"N, Long. 126°00'00"W; Driftpile Creek; Kechika? Formation. K.M. McClay, 1985; 85-OF-M-34. Age - Ordovician.

GSC loc. C-118928. Lat. 58°03'N, Long. 125°56'W; Driftpile Creek. K.M. McClay, 1985; 85-OF-M-46. CAI - 5. Age - Ordovician.

Ware map area

GSC loc. C-102873. Lat. 57°11'33"N, Long. 124°40'57"W; 13.5 km east of Akie River; collected from limestone bed at base of Silurian siltstone section; overlies graptolitic black shale. D. MacIntyre, 1981; M81-281A. CAI - 5. Age - Ordovician, late Arenig to Caradoc.

GSC loc. C-102875. Lat. 57°05'56"N, Long. 124°31'53"W; 1.4 km east of ERN showing; collected from limestone debris flow in contact with nodular phyllitic siltstone and calcarenite of the Kechika Group. D. MacIntyre, 1981; M81-188. CAI - 5. Age - Ordovician, Arenig.

GSC loc. C-102872. Lat. 57°05'56"N, Long. 124°31'53"W; 1.4 km east of ERN showing; collected from limestone debris flow in contact with nodular phyllitic siltstone and calcarenite of the Kechika Group. D. MacIntyre, 1981; M81-189. CAI - 5. Age - Ordovician, Arenig to Caradoc.

GSC loc. C-116665. Lat. 57°57'N; Long. 125°59'W; Driftpile Creek, 1760 m elevation. K. McClay, 1986; 86OFM-G80. Age - Early to Middle Ordovician.

CENTRAL SELWYN BASIN

Broken Skull Formation

Nahanni map area

Nahanni # and section number refer to number of sample and section in appendix of Gordey (in press).

GSC loc. C-083042. Lat. 62°32.5'N, Long. 128°5.5'W; dolostone member, section 29, 655-683 m, Nahanni #64. B.S. Norford, 80MJO-NE-812cF. CAI - 5-6. Age - Early Ordovician, probably Tremadoc.

GSC loc. C-087747. Lat. 62°47.8'N, Long. 128°10.4'W; section 34, 143 m, Nahanni #67. M.J. Orchard, 1980; 835NE-14. CAI - 5-6. Age - Early Ordovician, Arenig, *O. evae* Zone.

GSC loc. C-092562. Lat. 62°47.8'N, Long. 128°10.4'W; section 34, 71-72 m, Nahanni #69. M.J. Orchard, 1980; 835NE-13. CAI - 6. Age - Ordovician.

GSC loc. C-087746. Lat. 62°47.8'N, Long. 128°10.4'W; dolostone member, section 34, 52 m, Nahanni #70. M.J. Orchard, 1980; 835NE12. CAI - 5-6. Age - Early Ordovician, Arenig.

GSC loc. C-087638. Lat. 62°57.8'N, Long. 128°22.2'W; dolostone member, section 38, 1.5 m, Nahanni #71. S.P. Gordey, GGA80-55-1.5 m. Age - Early? Ordovician.

GSC loc. C-087034. Lat. 62°26.8'N, Long. 128°23.9'W; section 40, 312 m, Nahanni #72. S.P. Gordey, GGA79-70B-312. CAI - 5. Age - Early Ordovician, late Tremadoc-Arenig.

GSC loc. C-087052. Lat. 62°53.5'N, Long. 128°15.7'W; limestone member, Nahanni #73. S.P. Gordey, BUD 67 12-1. CAI - 5. Age - Middle? Ordovician.

GSC loc. C-087035. Lat. 62°55.4'N, Long. 128°24.5'W; Nahanni #75. S.P. Gordey, GGA79-53A1. CAI - 5. Age - Early Ordovician, Arenig.

GSC loc. C-102580. Lat. 62°37.0'N, Long. 128°12.6'W; limestone member, Nahanni #77. S.P. Gordey, GGA82-25A1. CAI - 5. Age -probably Middle Ordovician, Early Whiterock.

GSC loc. C-087048. Lat. 62°50.3'N, Long. 128°8.5'W; limestone member, section 31, 2 m interval below datum, Nahanni #81. S.P. Gordey, GGAW79-104C. CAI - 5-6. Age - Ordovician.

GSC loc. C-087623. Lat. 62°47.1'N, Long. 128°28.4'W; limestone member, section 32, 42 m, Nahanni #82. S.P. Gordey, GGA80-83b-42 m. CAI - 6-7. Age - Middle Ordovician.

GSC loc. C-102578. Lat. 62°34.8'N, Long. 128°15.9'W; limestone member, section 33, 2 m interval below datum, Nahanni #83. S.P. Gordey, GGA82-24.0 m. CAI - 5. Age - Late Early or early Middle Ordovician.

GSC loc. C-087640. Lat. 62°57.8'N, Long. 128°22.2'W; limestone member, section 38, 576 m, Nahanni #84. S.P. Gordey, GGAW80-55-576 m. CAI - 6. Age - Probably Middle Ordovician, Late Arenig to Llanvirn, early Whiterock.

GSC loc. C-087639. Lat. 62°57.8'N, Long. 128°22.2'W; limestone member, section 38, 450 m, Nahanni #85. S.P. Gordey, GGAW80-55-450 m. CAI - 5. Age - Middle to Late Ordovician.

GSC loc. C-087631. Lat. 62°57.2'N, Long. 128°23.7'W; limestone member, section 44, 30 m, Nahanni #90. S.P. Gordey, GGA80-92B-30 m. Age - Ordovician.

Flat River map area

GSC loc. C-087037. Lat. 61°02′N, Long. 127°30′W; Canyon of east flowing creek, 1.24 km west of Coal River. S.P. Gordey, 1979; GGA79-73-A1. CAI - 5. Age - Early Ordovician, late Arenig.

Sekwi Mountain map area

GSC loc. C-087616. Lat. 63°1.6′N, Long. 128°1.6′W; S.P. Gordey, 1980; GGA-80-39C-1. Age - Early Ordovician.

Haywire Formation

Glacier Lake map area

GSC loc. C-087039. Lat. 62°28.4′N, Long. 127°59.1′W; northeast of South Nahanni River, Section 54, 0 to -7 m, Nahanni #186. S.P. Gordey, GGAW79-86AC. CAI - 5. Age - Middle to Late Ordovician.

Nahanni map area

GSC loc. C-087042. Lat. 62°19.8′N, Long. 128°20.1′W; near and southwest of South Nahanni River, Nahanni #146. S.P. Gordey, DM79-3611. CAI - 5. Age - Late Middle Ordovician, Early Caradocian.

GSC loc. C-087043. Lat. 62°17.6′N, Long. 128°08.6′W; near and southwest of South Nahanni River, Nahanni #147. S.P. Gordey, DM79-207. CAI - 6-7. Age - Middle-Late Ordovician.

GSC loc. C-087036. Lat. 62°19.5′N, Long. 128°19.0′W; near and southwest of South Nahanni River, Nahanni #149. S.P. Gordey, DM79-4010. Age - Early Ordovician, early Arenigian.

GSC loc. C-087046. Lat. 62°19.3′N, Long. 128°18.6′W; near and southwest of South Nahanni River, Nahanni #150. S.P. Gordey, GGAW79-20CC. CAI - 5.5. Age - Early Ordovician, probably Arenig.

GSC loc. C-102583. Lat. 62°32.8′N, Long. 128°17.0′W; northeast of South Nahanni River, Nahanni #152. S.P. Gordey, GGA82-29-A1. CAI - 5. Age - Early Ordovician.

GSC loc. C-092560. Lat. 62°32.5′N, Long. 128°5.5′W; northeast of South Nahanni River, Section 29, 1662-1685 m, Nahanni #154. B.S. Norford, 812NE nf. CAI - 5. Age - Late Middle Ordovician through Early Silurian.

GSC loc. C-092559. Lat. 62°32.5′N, Long. 128°5.5′W; northeast of South Nahanni River, Section 29, 1340-1343 m, Nahanni #155. B.S. Norford, 812NE mF 1340-1243. CAI - 5-6. Age - Early Middle Ordovician, Early Whiterock.

GSC loc. C-092556. Lat. 62°32.5′N, Long. 128°5.5′W; northeast of South Nahanni River, Section 29, 952-956 m, Nahanni #156. B.S. Norford, 812NE jF 952-956 m. CAI - 5. Age - Early Ordovician, early Arenig.

GSC loc. C-092555. Lat. 62°32.5′N, Long. 128°5.5′W; northeast of South Nahanni River, Section 29, 881-883 m, Nahanni #157. B.S. Norford, 812NE jF. CAI - 5. Age - Early Ordovician, early Arenig, Fauna E.

GSC loc. C-092554. Lat. 62°32.5′N, Long. 128°5.5′W; northeast of South Nahanni River, Section 29, 844-850 m, Nahanni #158. B.S. Norford, 1980; 812NE 844-850 m. CAI - 5. Age - Early Ordovician.

GSC loc. C-087050. Lat. 62°50.3′N, Long. 128°08.5′W; northeast of South Nahanni River, Section 31, 268.5 m, Nahanni #159. S.P. Gordey, GGAW79-104C 2685. CAI - 5-6. Age - Late Middle to Late Ordovician, late Caradoc-Ashgill.

GSC loc. C-087049. Lat. 62°50.3′N, Long. 128°08.5′W; northeast of South Nahanni River, Section 31, 130.5 m, Nahanni #162. S.P. Gordey, GGAW79-104C1305. CAI - 5. Age - Late Middle to Late Ordovician, late Caradoc-Ashgill.

GSC loc. C-087628. Lat. 62°47.1′N, Long. 128°28.4′W; northeast of South Nahanni River, Section 32, 306 m, Nahanni #163. R.G. Anderson, GGAA80-83b-306 m. CAI - 5. Age - Late Middle to Late Ordovician, late Caradoc-Ashgill.

GSC loc. C-087627. Lat. 62°47.1′N, Long. 128°28.4′W; northeast of South Nahanni River, section 32, 180 m, Nahanni #165. S.P. Gordey, GGAA80-83b-180 m. CAI - 6. Age - Middle to Late Ordovician.

GSC loc. C-087626. Lat. 62°47.1′N, Long. 128°28.4′W; northeast of South Nahanni River, Section 32, 175 m, Nahanni #166. R.G. Anderson, GGAA80-83b-175 m. CAI - 6-7. Age - Middle to Late Ordovician.

GSC loc. C-087625. Lat. 62°47.1′N, Long. 128°28.4′W; northeast of South Nahanni River, Section 32, 123 m, Nahanni #168. R.G. Anderson, GGAA80-83b-123 m. Age - Ordovician to Early Devonian.

GSC loc. C-087624. Lat. 62°47.1′N, Long. 128°28.4′W; northeast of South Nahanni River, Section 32, 48 m, Nahanni #169. R.G. Anderson, GGAA80-83b-48 m. CAI - 5-6. Age - Middle to Late Ordovician, probably Caradoc.

GSC loc. C-102579. Lat. 62°34.8′N, Long. 128°15.9′W; northeast of South Nahanni River, Section 33, 885 m, Nahanni #170. S.P. Gordey, GGA82-24-885 m. CAI - 5. Age - Early Middle Ordovician, Early Whiterock.

GSC loc. C-087748. Lat. 62°47.8′N, Long. 128°10.4′W, Section 34, 145 m, Nahanni #65. M.J. Orchard, 1980; 835NE-5. CAI - 5-6. Age - Early Ordovician, early Arenig, *O. evae* Zone.

GSC loc. C-087643. Lat. 62°57.8′N, Long. 128°22.2′W; northeast of South Nahanni River, Section 35, 646 m, Nahanni #174. S.P. Gordey, GGAW80-55-646 m. CAI - 5-6. Age - Late Middle to Late Ordovician.

GSC loc. C-087642. Lat. 62°57.8′N, Long. 128°22.2′W; northeast of South Nahanni River, Section 38, 644 m, Nahanni #175. S.P. Gordey, GGAW80-55-644 m. CAI - 5-6. Age - Middle to Late Ordovician.

GSC loc. C-087641. Lat. 62°57.8′N, Long. 128°22.2′W; northeast of South Nahanni River, Section 38, 583 m, Nahanni #176. S.P. Gordey, GGAW80-55-583 m. Age - Middle to Late Ordovician.

GSC loc. C-087634. Lat. 62°57.2′N, Long. 128°23.7′W; northeast of South Nahanni River, Section 44, 243 m, Nahanni #180. R.G. Anderson, GGAA80-92B-243 m. Age - Late Middle to Late Ordovician.

GSC loc. C-087633. Lat. 62°57.2'N, Long. 128°23.7'W; northeast of South Nahanni River, Section 44, 160 m, Nahanni #181. R.G. Anderson, GGAA80-92B-160 m. CAI - 5-6. Age - Middle to Late Ordovician.

GSC loc. C-087632. Lat. 62°57.2'N, Long. 128°23.7'W; northeast of South Nahanni River, Section 44, 52 m, Nahanni #183. R.G. Anderson, GGAA80-92B-52 m. CAI - 4. Age - Middle Ordovician, Llanvirn-early Caradocian.

GSC loc. C-087644. Lat. 62°59.5'N, Long. 128°19.7'W; northeast of South Nahanni River, Section 55, 15 m, Nahanni #188. S.P. Gordey, GGAW80-60-15 m. Age - Probably Ordovician.

Rabbitkettle Formation

Nahanni map area

GSC loc. C-118166. Lat. 62°51'44"N, Long. 129°56'35"W; Gun Claims, Itzi Range, calcareous mudstone, "Orange Mudstone" unit. R.G. Anderson, 1985; 85-AT-90C. Age - Late Cambrian-Early Ordovician, Tremadocian.

GSC loc. C-118191. Lat. 62°51'46"N, Long. 129°57'11"W; Gun Claims, Itzi Range. R.G. Anderson, 1985; 85-AT-93C-2. Age - Late Cambrian-Early Ordovician.

GSC loc. C-118167. Lat. 62°51'46"N, Long. 129°51'11"W; Gun Claims, Itzi Range, calcareous mudstone, "Orange Mudstone" unit. R.G. Anderson, 1985; 85-AT-93C-1. CAI - 4.5-5. Age - Early Ordovician, Tremadoc.

GSC loc. C-118156. Lat. 62°51'52"N, Long. 129°58'36"W; Gun Claims, Itzi Range. R.G. Anderson, 1985; 85-AT-102C-3. CAI - 4.5-5. Age - Early Cambrian-Early Ordovician, Tremadoc.

GSC loc. C-087033. Lat. 62°55.0'N, Long. 128°26.4'W; northeast of South Nahanni River, collected from within a few metres beneath top of Rabbitkettle Formation, Nahanni #91. S.P. Gordey, GGA79-51B3. CAI - 3-4?. Age - Earliest Cambrian-Early Ordovician, Tremadoc.

GSC loc. C-087620. Lat. 62°58.0'N, Long. 128°34.9'W; northeast of South Nahanni River, Nahanni #93. S.P. Gordey, GGA80-81-a-1. Age - Early Ordovician, early Arenig.

GSC loc. C-087621. Lat. 62°58.0'N, Long. 128°34.9'W; northeast of South Nahanni River, Nahanni #94. R.G. Anderson, GGAA80-81a-C-2. Age - Ordovician.

GSC loc. C-086283. Lat. 62°24.2'N, Long. 129°25.3'W; southwest of South Nahanni River, Nahanni #109. S.P. Gordey, BUSG 77-28-D1. Age - Ordovician.

GSC loc. C-087045. Lat. 62°17.4'N, Long. Long. 128°54.3'W; southwest of South Nahanni River, Nahanni #110. S.P. Gordey, GGAW79-16BC. CAI - 5. Age - Middle Ordovician, probably late Llandeilo-early Caradoc.

GSC loc. C-087618. Lat. 62°38.2'N, Long. 129°47.4'W; southwest of South Nahanni River, Nahanni #111. R.G. Anderson, GGAA80-33A-0 m. Age - Probably Early Ordovician.

GSC loc. C-087040. Lat. 62°22.3'N, Long. 128°26.0'W; near South Nahanni River, Nahanni #112. S.P. Gordey, GGA79-4DC. CAI - 5. Age - Middle Ordovician.

GSC loc. C-087044. Lat. 62°19.1'N, Long. 128°19.3'W; near South Nahanni River, Nahanni #113. GGAW79-19BC. CAI - 5. Age - Late Middle-Late Ordovician.

GSC loc. C-087038. Lat. 62°17.5'N, Long. 128°12.4'W; near South Nahanni River, Nahanni #114. S.P. Gordey, GGA79-2-D1. CAI -5.5. Age - Middle Ordovician, late Llanvirn-Llandeilo.

Niddery Lake map area

GSC loc. C-102303. Lat. 63°17.8'N, Long. 130°14.0'W; north Block; 12.8 km at 300 from MacMillan Pass, unit "C10pl", upper member, limestone. Grey thin-bedded to thinly laminated limestone with a few coarse bioclastic beds. J.G. Abbott, 1981; 81-TOA-29-4. CAI - 5. Age - Late Cambrian-Early Ordovician, Fauna B.

GSC loc. C-102311. Lat. 63°17.4'N, Long. 130°34.0'W; north Block; 27.5 km at 284 from MacMillan Pass, unit C10pl; upper member, orange and grey-weathering clastic limestone. J.G. Abbott, 1981; 81-TOA-33-1. CAI - 5. Age - Early Ordovician.

GSC loc. C-089977. Lat. 63°23.7'N, Long. 130°03.5'W; north Block; 17 km at 356 from MacMillan Pass, Unit C10pl; upper member, limestone, grey- and buff-weathering silty limestone at the top of the unit at contact with overlying blue shale and chert of the Road River Formation. J.G. Abbott, 1982; 82-TOA-59-2. CAI - 5. Age - Early Ordovician.

GSC loc. C-102267. Lat. 63°17'00"N, Long. 130°42'30"W; dark grey, massive fine grained limestone 1 m thick interbedded with dark grey siliceous shale. J.G. Abbott, 1981; 81-GA-6-5. CAI - 5+. Age - Ordovician.

GSC loc. C-102269. Lat. 63°17.5'N, Long. 130°43.5'W; north Block; 35 km from MacMillan Pass at 280, unit C10pl; upper member, massive fine grained, dark grey limestone interbedded with dark grey siliceous shale. J.G. Abbott, 1981; 81-TOA-6-7. CAI - 5. Age - Late early-Middle Ordovician.

GSC loc. C-102276. Lat. 63°19'N, Long. 130°48'W; north Block; 39 km at 285 from MacMillan Pass, unit C10pl; upper member, limestone, thin-bedded, grey, silty limestone interbedded with brown weathering, greenish-grey shale. J.G. Abbott, 1981; 81-TOA-9-5. CAI - ~5. Age - Middle Ordovician, late Arenig-Caradoc.

GSC loc. C-102278. Lat. 63°17.5'N, Long. 130°40.0'W; north Block; 32 km at 282 from MacMillan Pass, unit C10pl; upper member, limestone. Massive dark grey limestone within dark grey chert, formerly regarded as base of the Road River Formation. J.G. Abbott, 1981; 81-TOA-10-6. CAI - 5. Age - Middle Ordovician, late Arenig to Caradoc.

GSC loc. C-102290. Lat. 63°15.6'N, Long. 130°46.0'W; central Block; 36.5 km at 274 from MacMillan Pass, unit C10pl; upper member, limestone. Thin-bedded light brown and grey weathering limestone. J.G. Abbott, 1981; 81-TOA-16-3. CAI - 5. Age - Early Ordovician.

Sekwi Mountain map area

GSC loc. C-089968. Lat. 63°23.7′N, Long. 129°58′W; north Block; 6 km at 300 from Peak 7654 ft (2332 m), Unit C10pl; upper member, limestone. Top of a 20 m thick sequence of brown to rusty weathering, thin-bedded grey limestone, calcareous sandstone and siltstone. J.G. Abbott, 1982; 82-TOA-49-2. CAI - 5. Age - Early Ordovician.

Tay River map area

GSC loc. C-102596. Lat. 62°29.25′N, Long. 133°4.51′W. S.P. Gordey, 1982; 82-GGA-54G1. Age - Lower Ordovician, Fauna C (Tremadoc).

Duo Lake Formation of the Road River Group

Nahanni map area

GSC loc. C-087041. Lat. 62°17.1′N, Long. 128°10.8′W, Nahanni #132; collection is from a tongue? of Duo Lake Formation near bend of Nahanni River, east Nahanni map area. S.P. Gordey, GGA79-11A4. CAI - 6. Age - Late Middle Ordovician, early Caradoc.

Sheldon Lake map area

GSC loc. C-118147. Lat. 62°44.30′N, Long. 130°10.75′W. S.P. Gordey, 1985; 85-GGA-39A1. Age - Late Cambrian-Early Ordovician.

GSC loc. C-118148. Lat. 62°44.30′N, Long. 130°10.75′W. S.P. Gordey, 1985; 85-GGA-39A2. Age - Cambrian-Early Ordovician.

GSC loc. C-103764. Lat. 62°33′28"N, Long. 131°42′00"W. S.P. Gordey, 1983; 83-GGA-1-2c. CAI - 5. Age - Early Ordovician, Tremadoc, Fauna C.

GSC loc. C-118054. Lat. 62°44′02.1"N, Long. 130°27′30.1"W. S.P. Gordey, 1985; 85-GGA-42A1. CAI - 4?. Age - Late Cambrian-Early Ordovician.

GSC loc. C-118093. Lat. 62°25′36.7"N, Long. 131°25′06.1"W. S.P. Gordey, 1985; 85-GGA-69B1. Age - Late Cambrian-Early Ordovician.

GSC loc. C-150039. Lat. 62°52′36.5"N, Long. 130°8′3.7"W. S.P. Gordey, 1986; 86-GGA-85C-2. Age - Early Ordovician, Tremadoc.

GSC loc. C-102569. Lat. 62°59.46′N, Long. 131°11.59′W. S.P. Gordey, 1982; 82-GGA-17C1. CAI - 4-5. Age - Middle Ordovician.

GSC loc. C-101905. Lat. 62°57′N, Long. 131°14.14′W. S.P. Gordey, 1982; 82-GGA-1B2. CAI - 5. Age - Ordovician, late Arenig to Caradoc.

GSC loc. C-102566. Lat. 62°54.4′N, Long. 131°22.0′W. S.P. Gordey, 1982; 82-GGA-6A1. Age - Probably Arenig.

GSC loc. C-103849. Lat. 62°50′53.2"N, Long. 131°15′38.4"W. S.P. Gordey, 1983; 83-GGA-53E1. CAI - 5. Age - Ordovician, late Arenig to Caradoc.

GSC loc. C-118068. Lat. 62°54′34.4"N, Long. 131°21′11.6"W. S.P. Gordey, 1985; 85-GGA-54C1. CAI - 5. Age - Ordovician, Late Arenig to Caradoc. Presence of *Cordylodus* sp. suggests reworking of sediments.

GSC loc. C-118091. Lat. 62°06′24.7"N, Long. 130°25′26.6"W. S.P. Gordey, 1985; 85-GGA-68A6. Age - Probably Ordovician.

Sapper Formation

Nahanni map area

GSC loc. C-087615. Lat. 62°58.0′N, Long. 128°40.0′W; northeast of South Nahanni River, Nahanni #191. S.P. Gordey, GAA80-36-C1. CAI - 5-6. Age - Late Middle to Late Ordovician, late Caradoc-Ashgill.

GSC loc. C-087619. Lat. 62°58.1′N, Long. 128°37.2′W; northeast of South Nahanni River, Nahanni #195. R.G. Anderson, GGAA80-80b-C-1. CAI - 7. Age - Ordovician.

GSC loc. C-087629. Lat. 62°47.1′N, Long. 128°28.4′W; northeast of South Nahanni River, section 32, 309 m, Nahanni #198. R.G. Anderson, GGAA80-83b-309 m-C. CAI - 5. Age - Middle to Late Ordovician.

GSC loc. C-087047. Lat. 62°20.2′N, Long. 128°13.7′W; northeast of South Nahanni River. S.P. Gordey GGAW79-43AC. CAI - 5. Age - Probably Late Ordovician.

PLATE 1

Figures 1-4. Ordovician conodonts from the Alexander Terrane ("Goat Herd Group").

1. *Juanognathus?* sp., GSC 95080, x80; Dezadeash map area (Lower or Middle Ordovician), GSC. loc. C-86303.
2. Indet. oistodiform element, GSC 95081, x100; Tatshenshini River map area, GSC loc. C-86293.
3. *Variabiloconus bassleri?* (Furnish), GSC 95082, x100; Tatshenshini River map area (Lower Ordovician, Tremadoc), GSC loc. C-86293.
4. *Protopanderodus* sp., GSC 95083, x60; Tatshenshini River map area (Arenig to Ashgill), GSC loc. C-102154.

Figures 5, 6. Middle or Upper Ordovician conodonts from the Quesnel Terrane, Penticton map area; Old Tom-Shoemaker Assemblage. Both figured specimens are from GSC loc. C-149527.

5. *Belodella?* sp., GSC 81227, x100.
6. *Strachanognathus parvus* Rhodes, GSC 81225, x100.

Figures 7-11. Lower Ordovician conodonts from the Selwyn Basin, Tay River map area. All figured specimens are from GSC loc. C-102596.

7. *Variabiloconus bassleri* (Furnish), GSC 95084, x65.
8. Fragment of *Chosonodina?* sp., GSC 95085, x65.

29, 30. *Rossodus manitouensis* Repetski and Ethington, GSC 95086 and GSC 95087, respectively, x65.

11. *Acontiodus* sp., GSC 95088, x50.

Figures 12, 13. Middle or Upper Ordovician conodonts from Cassiar Platform, Finlayson Lake map area, GSC loc. C-93479.

Phragmodus undatus Branson and Mehl, GSC 95089 and GSC 95090, respectively, x100.

Figures 14-19. Middle Ordovician conodonts from the Selwyn Basin, Yukon Territory, Ogilvie Mountains, Dawson map area, undivided Road River Group.

14-16. *Ansella nevadensis* (Ethington and Schumacher), GSC 95091 to GSC 95093, x100; GSC. loc. C-101507.

17. *Protopanderodus robustus* (Hadding), GSC 95094, x40; GSC. loc. C-101697.
18. *Pygodus serra* (Hadding), GSC 69095, x100; GSC. loc. C-103896.
19. *Paroistodus? mutatus* (Branson and Mehl), GSC 69096, x100; GSC. loc. C-101574.

Figure 20. Middle Ordovician conodonts from the Kechika Basin, central B.C., Ware map area, undivided Road River Group. GSC loc. C-102875.

Parapanderodus arcuatus Stouge, GSC 95096, x100.

Figures 21, 22. Early Ordovician conodonts from the Selwyn Basin, Yukon Territory, Sheldon Lake map area, Duo Lake Formation of Road River Group, Tremadoc, GSC loc. C-118054.

21. *Cordylodus proavus* Muller, GSC 95097, x70.
22. *Eoconodontus notchpeakensis* (Miller), GSC 95098, x95.

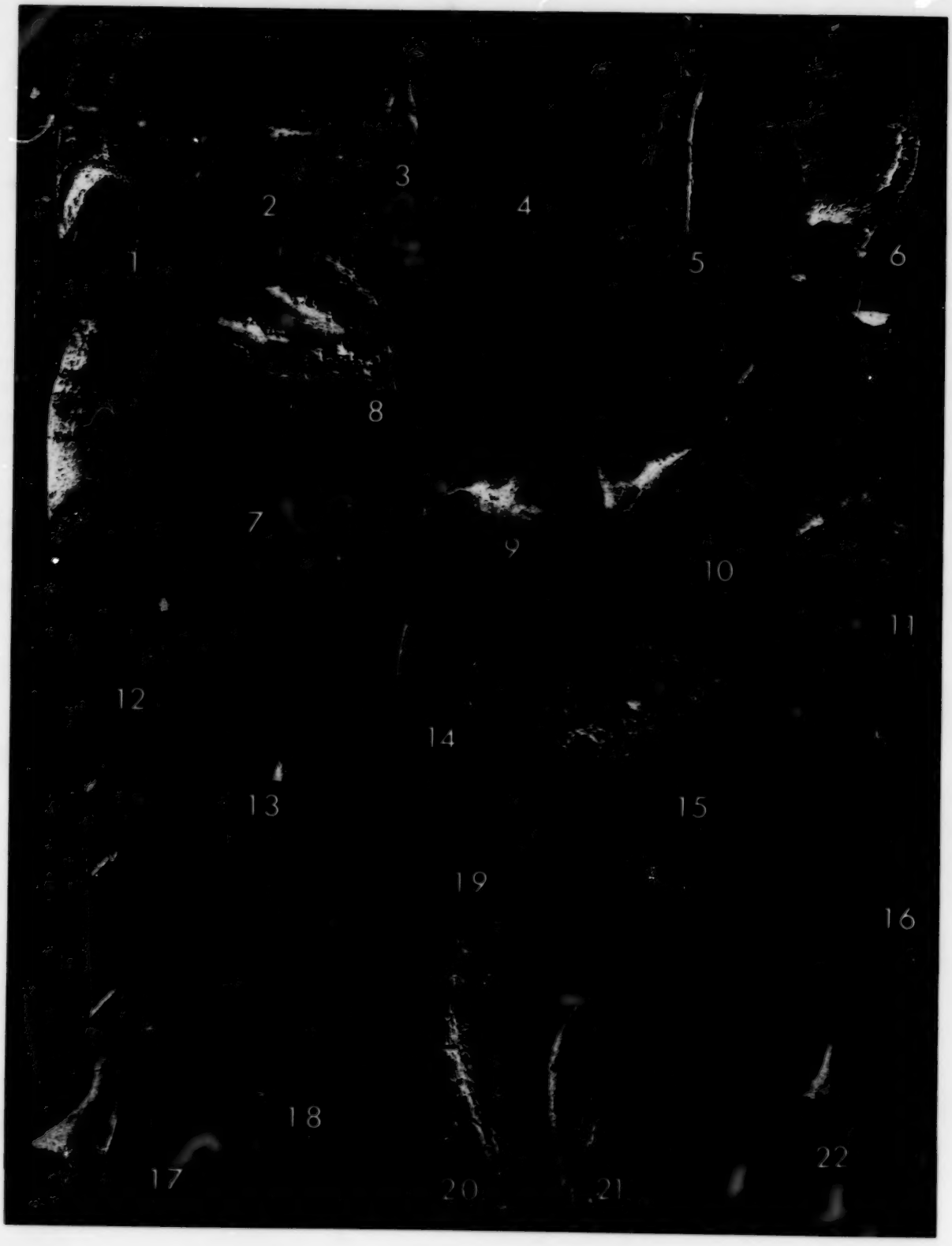
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PLATE 2

Figures 1-3, 6-8, 15-17. Early to Middle Ordovician conodonts from the Selwyn Basin, Yukon Territory, Mackenzie Mountains, Niddery Lake map area, Rabbitkettle Formation.

1, 2. *Cordylodus intermedius* Furnish, GSC 95099 and GSC 95100, respectively, x80; GSC loc. C-102290.

3. *Eoconodontus notchpeakensis* (Miller), GSC 95101, x125; GSC loc. C-102290, Tremadoc.

6-8. Cordylodus drucei Miller, GSC 95102, GSC 95103, and GSC 95192, respectively, x80; GSC loc. C-102303.

15. *Protopanderodus giganteus* (Sweet and Bergström) s.f., GSC 95104, x40; GSC loc. C-102269, Middle Ordovician.

16, 17. *Protopanderodus varicostatus* (Sweet and Bergström), GSC 95105 and GSC 95106, respectively, x50; GSC loc. C-102269, Middle Ordovician.

Figures 4, 5, 19, 20. Early to Middle Ordovician conodonts from the Selwyn Basin, Yukon Territory, Sheldon Lake map area, undivided Road River Group.

4. *Cordylodus angulatus* Ulrich and Bassler, GSC 95107, x78; GSC loc. C-103764, Tremadoc.

5. *"Prooneotodus" tenuis* (Muller), GSC 95108, x84; GSC loc. C-118147, Tremadoc.

19. *Walliserodus ethingtoni* Fahraeus, GSC 95109, x86; GSC loc. C-118068, Middle Ordovocian.

20. *Pygodus anserinus* Lamont and Lindstr?m, GSC 95110, x50; GSC loc. C-112569, Middle Ordovician.

Figures 9-14, 18. Ordovician conodonts from the Selwyn Basin, Yukon Territory, Nahanni map area, Rabbitkettle Formation.

9. *Teridontus nakamurai* (Nogami), GSC 95111, x120; GSC loc. C-87033.

10. *Cordylodus proavus* Muller, GSC 95112, x100; GSC loc. C-87033.

11. *Cordylodus lindstroemi* Druce and Jones, GSC 95113, x84; GSC loc. C-118167.

12, 14. *Utahconus* sp., GSC 95114 and GSC 95115, respectively, x100; GSC loc. C-118167.

13. *Monocostodus* sp., GSC 95116, x100; GSC loc. C-118167.

18. *Scabbardella altipes* (Henningsmoen), GSC 95117, x78; GSC loc. C-87045.

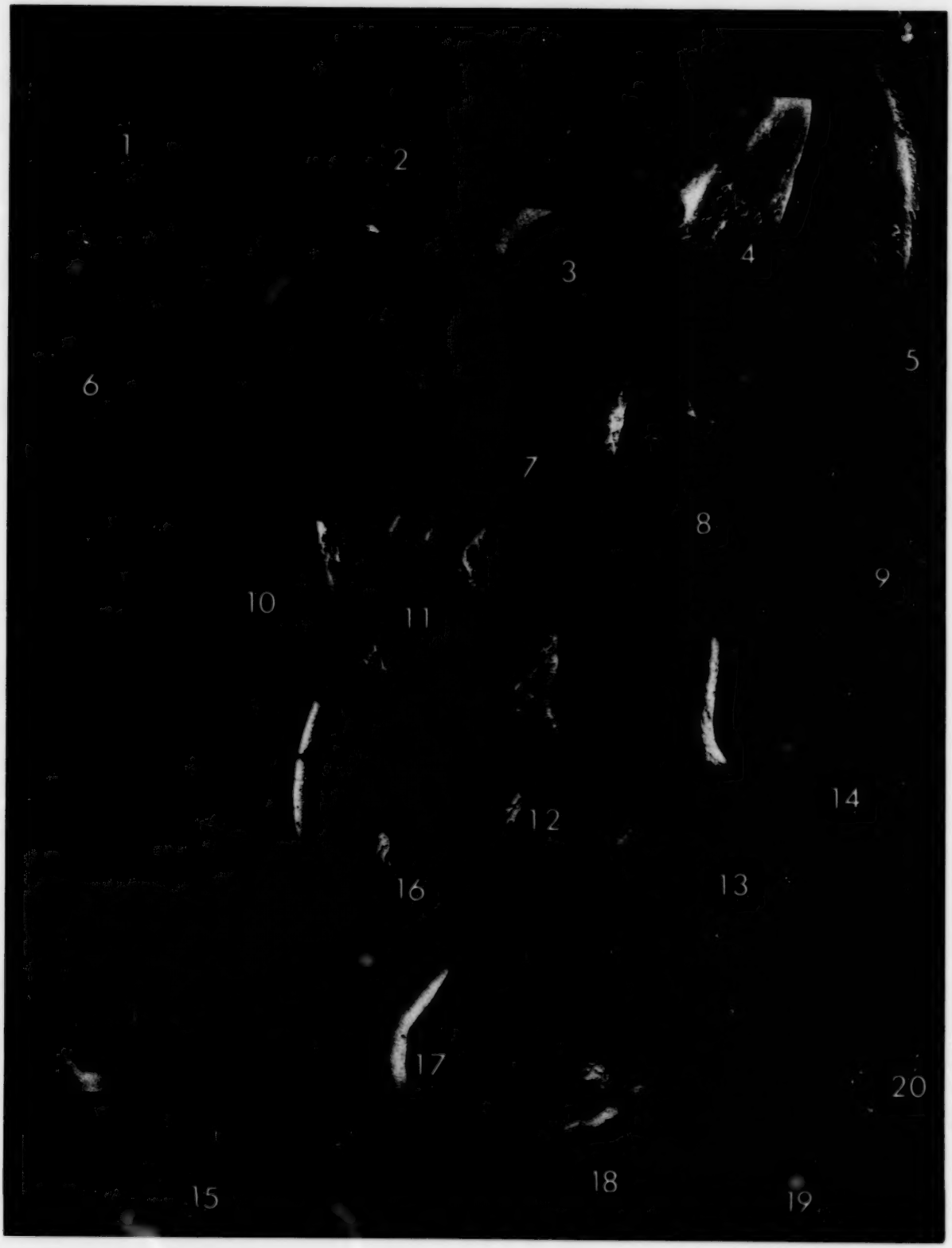
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PLATE 3

Figures 1-3, 17. Middle to Upper Ordovician conodonts from the Selwyn Basin, Yukon Territory, Sheldon Lake map area, undivided Road River Group; GSC loc. C-102569.

1. Cahabagnathus friendsvillensis (Bergstr?m), GSC 95118, x50.
2. Spinodus spinatus (Hadding), GSC 95119, x50.
3. Periodon aculeatus Hadding, GSC 95120, x50.
17. Eoplacognathus sp., GSC 95095, x50.

Figure 4. Middle Ordovician conodont from the Selwyn Basin, Yukon Territory,Flat River map area, Broken Skull Formation; GSC loc. C-87037. *Paroistodus parallelus* (Pander), GSC 95121, x90.

Figures 5-16, 18, 19. Selwyn Basin, Yukon Territory, Nahanni map area, Haywire Formation, Lower Ordovician.

5. Indet. scolopodiform element, GSC 95122, x100; GSC loc. C-92555.
6. *Parapanderodus emarginatus* Barnes and Tuke, GSC 95123, x100; GSC loc. C-92555.
7. *"Scolopodus" abruptus* Repetsky, GSC 95124, x100; GSC loc. C-92554.
8. *Oneotodus costatus* Brand and Ethington, GSC 95125, x100; GSC loc. C-92555.
9. *Protopanderodus? leei* Repetski, GSC 95126, x85; GSC loc. C-102583.

10-12. *Drepanoistodus* sp. aff. *D. concavus* (Branson and Mehl), GSC 95127 to GSC 95129, x50, x65, and x40, respectively; GSC loc. C-102583.

13. *Walliserodus australis* Serpagli, GSC 95130, x84; GSC loc. C-87748.
14. *Bergstroemognathus extensus* Serpagli, GSC 95131, x85; GSC loc. C-87748.
15. *Acontiodus* sp. aff. *A. latus* Pander, GSC 95132, x186; GSC loc. C-92554.
16. *Oepikodus evae* (Lindström), GSC 95133, x80; GSC loc. C-87748.
18. *Juanognathus variabilis* Serpagli, GSC 95134, x100; GSC loc. C-87748.
19. *Oepikodus communis* Ethington and Clark, GSC 95135, x170; GSC loc. C-92555.

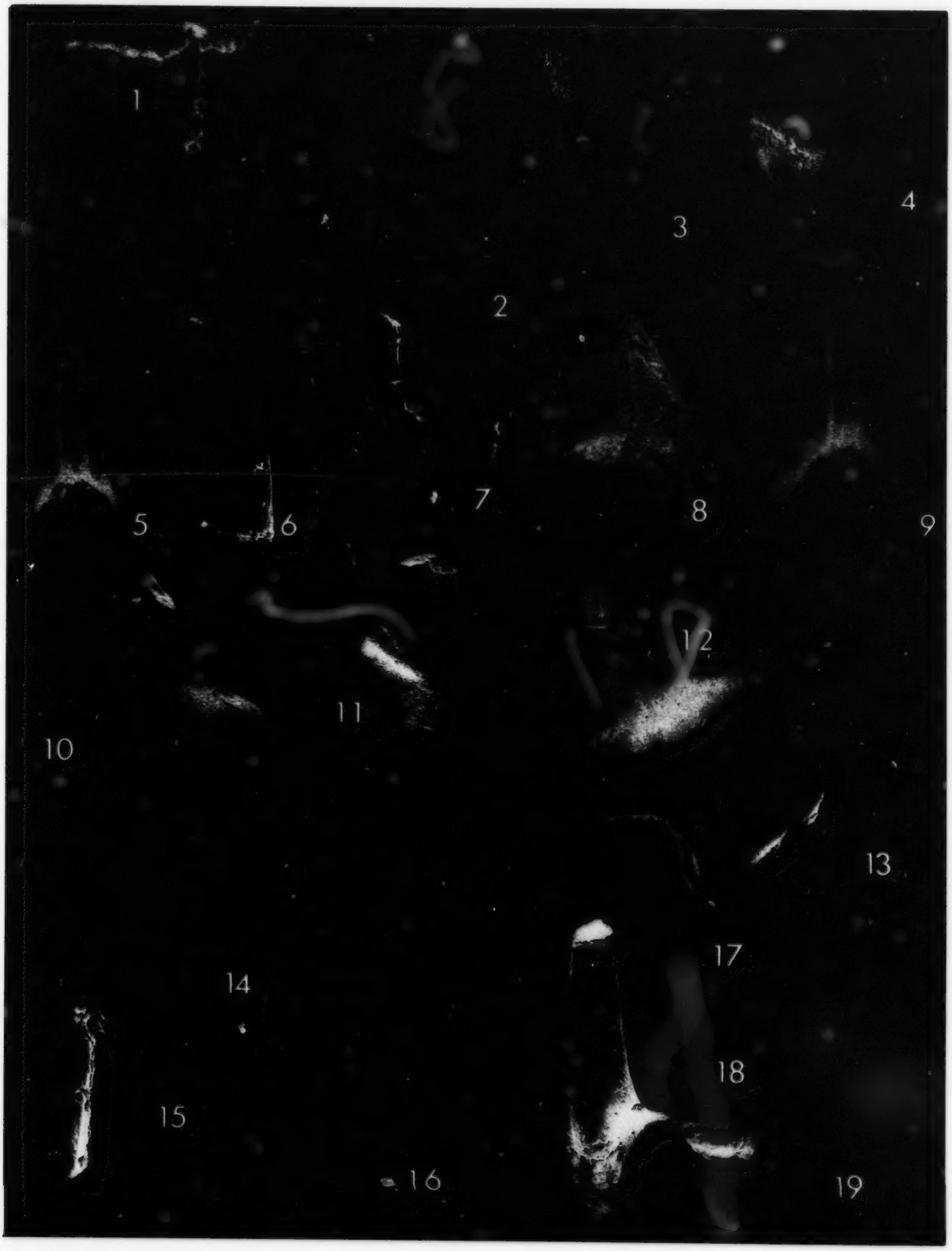
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PLATE 4

Figures 1-16. Yukon Territory, Selwyn Basin, Nahanni map area, Haywire Formation, Lower to Middle Ordovician (except figs. 12-16: Middle to Upper Ordovician).

1. *Acodus sweeti* Serpagli, GSC 95136, x114; GSC loc. C-92555.
2. *Drepanoistodus basiovalis* (Sergeeva), GSC 95137, x84; GSC loc. C-87748.
3. *Drepanodus arcuatus* Pander, GSC 95138, x100; GSC loc. C-87748.
4. *Protopanderodus rectus* Lindström, GSC 95139, x68; GSC loc. C-87748.

5, 6. *Scandodus sinuosus* Mound, GSC 95140 to GSC 95141, respectively, x80; GSC loc. C-102579.

7. *Protoprioniodus* sp., GSC 95142, x57; GSC loc. C-102579.
8. *Phragmodus* n. sp. Barnes, GSC 95143, x112; GSC loc. C-92560.

9, 10. *Multioistodus compressus* Harris and Harris, GSC 95144 and GSC 95145 respectively, x70; GSC loc. C-92559.

11. *Leptochirognathus* sp. A Tipnis et al., GSC 95146, x90; GSC loc. C-92559.

12-14. *Oulodus* sp., GSC 95147 to GSC 95149, respectively, x120; GSC loc. C-92560.

15. *Belodina confluens* Sweet, GSC 95150, x77; GSC loc. C-87643.
16. *Belodina compressa* (Branson and Mehl), GSC 95151, x77; GSC loc. C-87624.

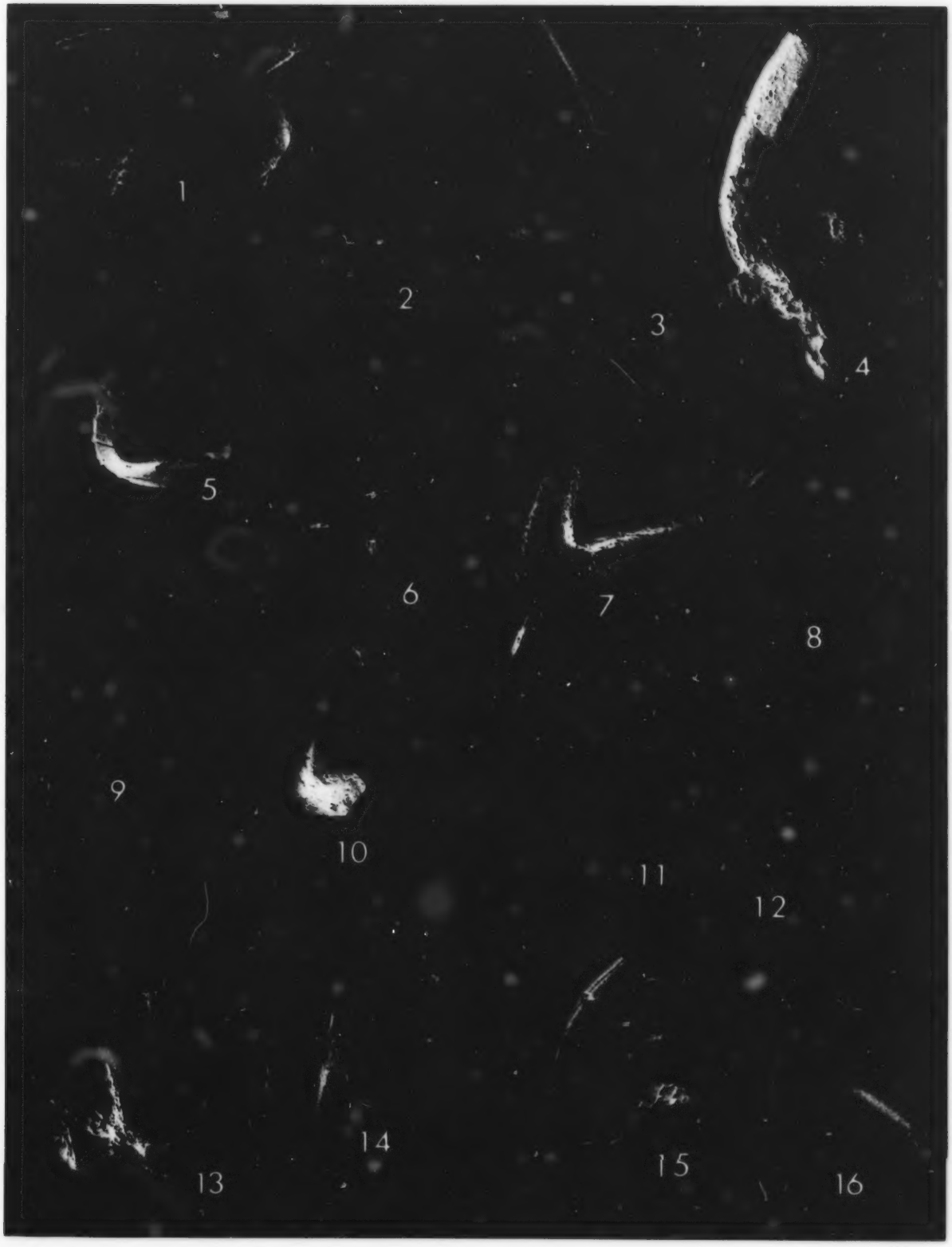
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PLATE 5

Figures 1-20. Early to Middle Ordovician conodonts from the Selwyn Basin, Yukon Territory, Nahanni map area, Broken Skull Formation. Specimens 1-7 are from GSC loc. C-83042.

1, 2. *Parapaltodus* sp., GSC 95152 and GSC 95153, respectively, x92.

3. *Oistodus? inaequalis* Pander, GSC 95154, x80.

4. *?Scolopodus sulcatus* Furnish, GSC 95155, x80.

5. *Scolopodus bolites* Repetski, GSC 95156, x80.

6. *Drepanoistodus inconstans* (Lindström), GSC 95157, x100.

7. *Drepanoistodus* sp. aff. *D. basiovalis* (Sergeeva), GSC 95158, x100.

8. *Histiodella? donnae* Repetski, GSC 95159, x100; GSC loc. C-87034.

9. *Prioniodus elegans* Pander, GSC 95160, x95; GSC loc. C-102578.

10. *Parapanderodus asymmetricus* (Barnes and Poplawski), GSC 95161, x100; GSC loc. C-87035.

11-13. *"Scandodus" robustus* Serpagli, GSC 95162 to GSC 95164, respectively, x75; GSC loc. C-102578.

14. *Oistodus lanceoloatus* Pander, GSC 95165, x90; GSC loc. C-102578.

15. *Histiodella sinuosa* (Graves and Ellison), GSC 95166, x84; GSC loc. C-102580.

16. *"Scolopodus" quadratus* Pander, GSC 95167, x85; GSC Loc. C-87034.

17. *Parapanderodus emarginatus* (Barnes and Tuke), GSC 95168, x100; GSC loc. C-87034.

18. *Reutterodus andinus* Serpagli, GSC 95169, x100; GSC loc. C-87035.

19. *Ansella jemtlandica* (Löfgren), GSC 95170, x100; GSC loc. C-87035.

20. *Walliserodus australis* Serpagli, GSC 95171, x84; GSC loc. C-87035.

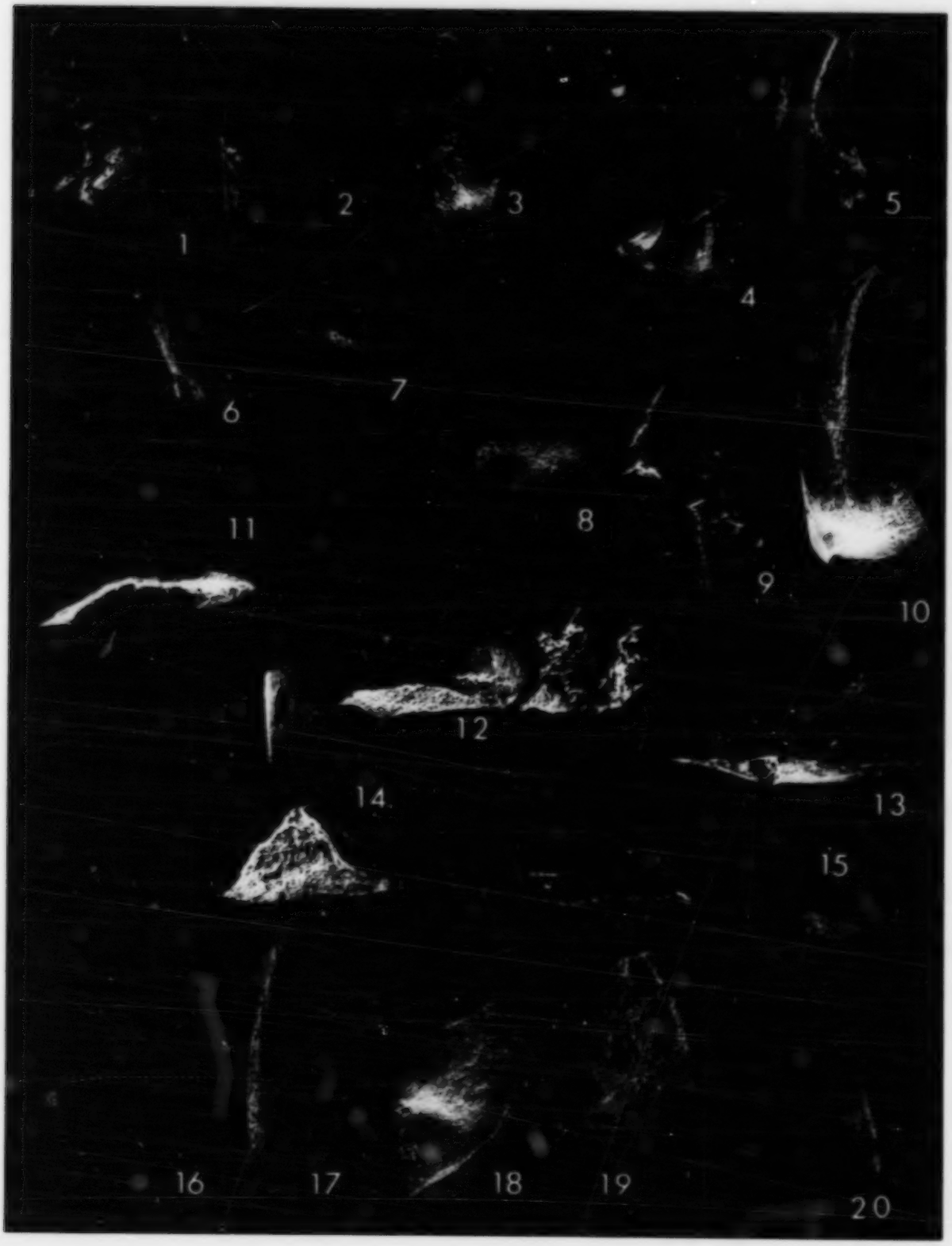
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PLATE 6

Figures 1-10, 12, 18, 20. Middle to Late Ordovician conodonts from the Selwyn Basin, Nahanni map area, Haywire Formation. Specimens 1-7 are from GSC loc. C-87049.

1-3. *Ozarkodina sesquipedalis* Nowlan and McCracken, GSC 95172 to GSC 95174, respectively, x80.

4-7. *Aphelognathus politus* (Hinde), GSC 95175 to GSC 95178, respectively, x80.

8. *Polyplacognathus ramosus* Stauffer, GSC 95179, x40; GSC loc. C-87042.

9. *Eoplacognathus*? sp., GSC 95180, x80; GSC loc. C-87632.

10. *Staufferella falcata* (Stauffer), GSC 95181, x80; GSC loc. C-87049.

12. *Pseudooneotodus mitratus* (Moskalenko), GSC 95182, x80; GSC loc. C-87049.

18. *Amorphognathus tvaerensis* Bergström, GSC 95186, x80; GSC loc. C-87042.

20. *Eocarniodus*? sp., GSC 95187, x103; GSC loc. C-87624.

Figures 13-15. Middle to Upper Ordovician conodonts from the Selwyn Basin, Yukon Territory, Nahanni map area, Sapper Formation; GSC loc. C-87615.

13, 14. *Walliserodus amplisstmus* (Serpagli), GSC 95183 and GSC 95184, x80.

15. *Drepanoistodus suberectus* (Branson and Mehl), GSC 95185, x80; GSC loc. C-87615.

Figures 11, 16, 17, 19. Middle to Upper Ordovician conodonts from the Selwyn Basin, Nahanni map area, Broken Skull Formation.

11. *Pygodus* sp., GSC 95188, x100; GSC loc. C-87640.

16. Indet. stelliscaphate element nov., GSC 95189, x100; GSC loc. C-87052.

17. *Ulrichodina deflexa* Furnish, GSC 95190, x100; GSC loc. C-87034.

19. Indet. curtognathiform element, GSC 95191, x93; GSC loc. C-87052.

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